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Editor

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by J. Harvey Haggard

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The Magazine of Prophetic Fiction

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ON THE COVER THIS MONTH

taken from J. Harvey Haggard's "Castaways on Deimos" we see the rocket life boats abandoning the giant space liner, as it struggles helplessly in the ceaseless bombardment of the meteor stream. In one of these life boats, our characters are soon to land on Deimos, moon of Mars.

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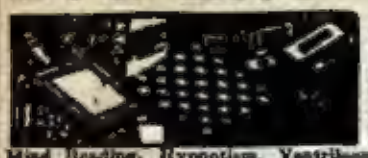

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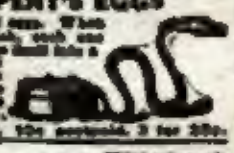

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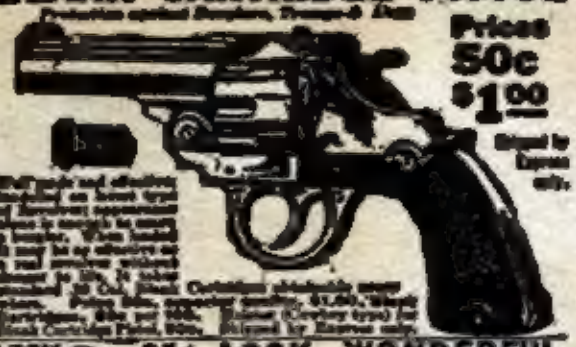

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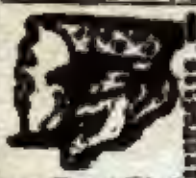

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EDITORIAL PAGE

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Volume 5 Number 2

WONDER Stories

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WONDERS OF SPACE FLIGHT

An Editorial by Hugo Gernsback

● The fastest moving airplane on earth, so far, made a record of some 430 miles an hour. The fastest physical objects on earth were shells from the Big Bertha guns which traveled at the rate of 5,000 feet per second or 3,500 miles an hour. The next fastest thing we experience is the earth itself moving in its orbital speed around the sun at the rate of about 65,000 miles an hour, which is 18 miles a second. The fastest moving thing we have a record of, in the present status of science, is *light*, moving at the rate of 186,000 miles a second; according to Einstein, no physical body can reach this speed.

When it comes to space flying, there are a number of considerations which are interesting, not only from the speculative, but from a practical standpoint; because, as soon as space flying becomes possible, these considerations will be most important. Heavenly bodies in motion, even small ones such as meteorites, etc., travel at a velocity which may reach two or three hundred miles a second. This, however, may be slow going, because astronomers have observed stellar nebulae receding at the enormous speed of 12,000 miles per second. The reality of this, however, has not been verified so far. The average speed in space of free bodies is between 20 and 30 miles per second, in the neighborhood of the earth. At this rate a meteorite would cover the distance between Earth and Moon in two or three hours. The Earth, stopped in its orbit, would reach the Sun in about two months. In a space flyer we require a minimum speed of seven miles a second to get away from the earth's gravitation. Once this point has been reached, the propelling rockets need not spend any further energy; because the momentum of the space flyer will keep it going. It will be stopped only by counter-firing, retardation charges, or until some other planet or body intercepts its flight. There is, however, no reason why we cannot further accelerate the speed of our flyer. Of course, it cannot be accelerated indefinitely. According to Einstein's law and the Fitzgerald contraction, a lot of things which science now knows nothing about, would be bound to happen once the speed of such a projectile went over sixty thousand miles per second. This would be about one-third the speed of light. Of course such a speed could not be reached, mainly because there could not be enough fuel on board the flyer to accelerate the ship, to this speed, disregarding all other physical problems.

There is, for instance, the little matter of meteorites. Every schoolboy knows that even a very small object, when thrown from a high building, becomes a dangerous missile.

What then happens if a meteorite, going at a speed of 20 miles a second, collides with a space flyer going at the rate of, let us say, only eight miles a second? When I say meteorite here, I say so advisedly; because the meteorite can be quite microscopic. In other words, nothing but plain dust the size of gravel. Yet, such dust will become almost a solid wall when a space flyer going at terrific speed encounters it; the dust particles probably would go right through the space flyer and whatever else it contained, no matter how thick its shell.

Whether this meteorite was nothing but dust or a larger physical body makes little difference. It would go through the flyer just the same, cutting a clean hole like a machine die, and destroying everything in its path; first, mechanically; second, by heat. It may even be doubted whether in some cases such a meteorite would have time to go clear through the space flyer because the kinetic energy released would probably volatilize the larger part or perhaps the whole of the space flyer before it got clear through. It is easy to figure out the terrific amounts of energy released when bodies flying at such speeds meet head on in collision.

These are, of course, scientific considerations which need full practical verification, experimentally or otherwise. It may be pointed out that the meteorite danger is not so serious; for the reason that it has been repeatedly calculated that the chances of a space flyer's colliding with a meteorite is not one in a million. This may be the case for the larger or even pebble-sized meteorites; but it is probably not true of meteoritic dust, of which there is quite an abundance in free space.

Of course, our researches in the domain of this science are yet, too new to predict exact results. Only the future will tell.

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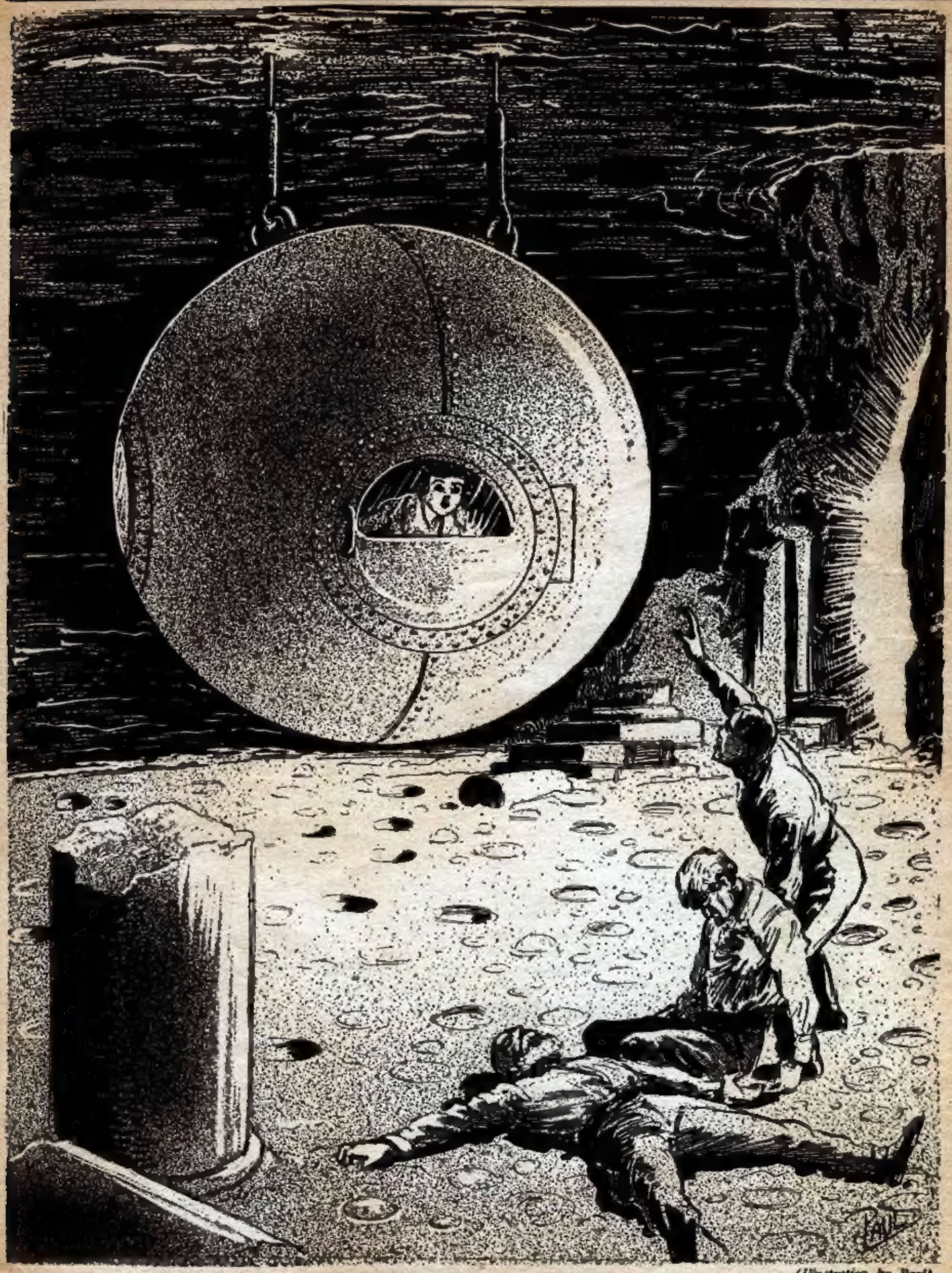

(Illustration by Paul)

It was then he saw the sphere. He jumped up in incredulity. The light was nearly gone now. Thick streamers of water curled about them . . .

THE MYSTERY OF PLANET DEEP

By GEORGE A. DYE

● Many authors writing of their characters who come across mysterious beings or machines, assume blithely that their heroes will understand immediately what the strange things are all about.

As a matter of truth, we know that if intelligent beings exist upon Mars or Venus, and we were to come across one of their mechanical creations, we might not have the slightest conception of what the thing is.

It is a relief therefore to read Mr. Dye's story. He has written a fascinating, a gripping and yet an imaginative tale; but he has kept within the bounds of plausibility. He has written of mysterious events, just as they might happen in the cold, dark depths of the ocean. He has portrayed vividly a breathtaking experience, so vividly that we realize that such things could happen any day. And faithful to truth, he has left us with the mystery still to be solved.

● Tea time at Loimer's. Soft murmur of voices, and the ringing bell-like chime of glass. Sudden gay laughter like a silver shower. Music, plangent and unobtrusive, drifting like slow smoke. Here and there the quick flash of jeweled fingers in tiny explosions of light. Rich perfumes and the fragile memory-laden dust of fragrant powders.

To Thornton Hunt, seated opposite the girl in grey, it was an odor he had almost forgotten. It was exciting, stimulating, restlessly sweet—the odor of fashion. It was five years since he had seen bare arms and shoulders powdered to creamy whiteness, the flash of prismatic gems, the slim loveliness of rich gowns.

"Lucille—" He leaned forward with sudden concern. "I only returned yesterday, but—I probably seem a stranger to you—" His lean face was coloring slowly. "You remember when I left?"

She did not look at him. Her eyes rested on the bright splash of flowers couched in a little mound of sweetness on the table. "Yes, I remember."

"You waited?" He frowned slightly. "I mean, have you—?"

She raised her eyes to his face. He was scarlet. "Yes, Tad. I waited."

"Lucille—"

"Why did you do it, Tad? Didn't you realize how it would hurt me?" There was no anger in her low voice, only a mild reproach.

"I'm sorry," he said with quiet earnestness. "In a way, that is. I had to do it! I didn't have a penny and—"

Hunt stared at her helplessly. "Damn it, Lucille! You're so extraordinarily decent about it! I feel like an ass. I've no right—" He was suddenly and painfully aware of the bright sparkle of tears in her eyes. "My dear—" he exclaimed, half rising.

"Don't, Tad. Never mind. It's just—" She smiled with quick radiance. "I'm so darned happy!"

A waiter in a dark silver-badged coat appeared and did something annoying with the table service. She laughed at Hunt's baffled glare. "Silly!" she whispered. He relaxed and grinned happily.

The waiter turned and was not. Hunt bent his tall form half across the little table. "I've made a lot of money," he announced. "Will you marry me now?"

"I'd have done that five years ago, my dear."

"Right now? Right this minute?" he demanded.

"Right this very instant, my lad!"

● They became aware of a growing silence in the great room—of a polite, peering inquisitiveness held in careful check. There was an instant of complete and incongruous quiet, then a subdued rustling and whispering spread from table to table with the rapidity of wild-fire.

The room was buzzing, when Lucille exclaimed: "Good Heavens, it's father! I'd forgotten—"

Through the purple swirl of cigarette smoke Hunt saw a tall, gaunt figure standing at the far end of the room in the midst of a gesticulating group of waiters. "He was to meet us here?"

"Yes, I told him you were back. There, he sees us!"

Hunt unlimbered his tall form and rose as the most celebrated figure in the medical and electrical world made his way toward them. At sixty-five Doctor Alexander Conway was the acknowledged wizard in an age of wizardry; a revolutionary thinker of fierce and fanatical energy, an intellectual nemesis deriving a satanic pleasure from his disruption of the ancient and traditional world of medicine.

It may have been that he was a genius, certainly he was innately and primarily an egoist and an intellectual, possessed of a towering individuality—a hater of all sham, all style, all ritual. Vast of brow, with a magnificent head and burning eyes, he was an unforgettable figure.

Hunt grasped the corded hand the doctor extended to him. "It was decent of you to come, sir! We—"

"—are about to be married?" interrupted the doctor hopefully.

"Why, father!"

Hunt's face wore an appreciative smile. "With your permission, sir."

Doctor Conway appeared vaguely startled. He pulled out a chair and seated himself. "Sit down, Tad." He peered happily into the flushed face of his daughter. "Such thoughtful observance of the niceties," he said, "should be answered with equal grace." The deep lines of his face softened. "It is my wish," he continued, "that you may be very happy."

Far across the room came the faint clapping of hands. It rose in volume with a steady cadence until, abruptly, it was a torrent of sound. There were no cheers, no calls, no shouted salutations, only this one expressive tribute to a man who was proving himself even more of a benefactor of mankind than these assembled people would ever realize within the space of their lives.

"Dad—" whispered Lucille at the doctor's startled look of inquiry. "It's for you."

"Damn!" said the good doctor precisely. He rose and acknowledged the applause with a smile and a nod of his massive head. Seating himself again he turned to Hunt. "What have you been doing, Tad?"

"Mining, sir. Upper Michigan peninsula. Successful, too," he added.

The doctor nodded. "Good! Both as a man and as an engineer, I had faith in you. I am very pleased." He frowned a moment in silence. "I can use you," he said bluntly. "You are not engaged?"

"If I were, sir, I'd cancel it! As a matter of fact, after five years of profitable but tiring work at the mines I'd welcome something new."

"Well spoken. I have something in mind that ought to interest you. Bit of an adventure, if you care to call it that. Anyway, I think you'll like it." He turned to Lucille. "One week to get married in! Sorry, but no more." He rose with swift grace.

"But, dad—"

"Most tremendously sorry, my dear! You'll understand. Bring Tad to my country place." He hesitated, frowning thoughtfully. "You would please me by getting married as quietly as possible. I've no time for ceremony." He looked at them with a sudden air of boyishness. "I'm going on a vacation, and I want you two to come along." He clasped a lean hand to Hunt's shoulder and turned away.

"Can we make it?" asked Hunt after they had watched the lean figure disappear through the distant doorway.

"Without a speck of effort, my lad!"

In a meteoric brilliancy of smiles, tears and excitement, she turned for her wraps.

● The car, resplendent with gleaming color and iridescent metal, ground slowly up the graveled drive and stopped before the broad steps of the country home of Doctor Alexander Conway.

Hunt switched off the ignition and leaned with a contented sigh. "Well, here we are! Complete, with wife!" He grinned down at Lucille. Suddenly he felt constrained to kiss her emphatically and with gusto. "Am I an awful husband?" he demanded. Five minutes later he descended from the car feeling noble and a trifle foolish.

A liveried servant swung open the heavy door as they mounted the steps. With smug efficiency he announced: "Doctor Conway requests that you see him in his laboratory, sir."

"You run along," urged Lucille. "I'm going to sleep a while."

Hunt made his way down the spacious and luxurious hall that led to the back of the house. He was feeling ridiculously happy and contented. Five years ago he had walked down this same passage a young and unproven boy, very much in love with the motherless daughter of the famous Doctor Conway, and very much inclined to do something about it. He chuckled inwardly at the youthful seriousness with which he had braved the doctor in this same laboratory he was now approaching.

"She's splendid, sir!" he had said shakily, "and I love her. That's why I'm leaving."

The gaunt doctor had smiled kindly upon him. "Good idea, lad. Sound logic. She'll wait." He had placed his hand on Hunt's shoulder. "Good-bye!"

That was all. It had sent him away dizzy with the urge for conquest. And now he was back. And he had most certainly done something about the motherless daughter of the famous Doctor Conway.

He crossed a marble paved court to a low ivy-clad brick building that rambled over an entire acre of ground.

The heavy fireproof door swung open easily to his touch. Everywhere spotless snowy tile met the eye. The air, vibrating to the eerie drone of hidden ventilators, was laden with an odor, heavy and nameless, that permeated the glistening corridor. His footsteps echoed hollowly as he moved forward peering into open doorways. The doctor, he reflected, might be anywhere.

For the most part the rooms were scrupulously clean and uninteresting; a bench or two, a sink with pedal taps, a scattering of stools. And yet he was aware that this empty and unspectacular whiteness was the citadel of unbelievably brilliant research, the focal point of world-wide scientific interest, the execution chamber of prettily labeled theories and dogmatic utterances. He was also comfortably aware that he was about to become a member of this sacred and secluded body of meticulous technicians.

In one room he discovered a gowned and absorbed young man busy over an adding machine. From a doorway on his left appeared a short, white-jacketed man with glasses of an astonishing thickness who scurried from sight with blind intentness. Hunt moved on with a curious feeling of impatience. Was he never to be noticed?

Then, with the abruptness of a sword-cut, came the crashing roar of an explosion. The floor trembled as to the impact of a ponderous hammer, while an alarm bell brayed into excited life filling the empty rooms with strident sound.

He stood in startled immobility, his mind a swirl of vague conjectures, until a spectacled man appeared from nowhere, slight and thin-haired, with a shaken air of having been jarred from a deep abstraction.

"What happened?" demanded Hunt.

The other regarded him with sudden bitterness. "Conway!" he snapped testily. "Always banging around with that contraption of his! Might as well work in a round-house—" He hurried off, his voice thin with disapproval, Hunt trailing behind.

They scurried down corridors, through doorways and empty rooms—conscious of distant, shouting voices and the sustained clamor of the alarms. Before the circular

well of a metal stairway stood a flustered group of elderly men, mostly in shirt-sleeves, staring goggle-eyed at a thin wisp of greenish smoke coiling out of the blackness below in a slow and tortuous column.

Suddenly someone shouted: "Doctor Conway!" in a thin, nervous voice. They strained anxious eyes into the gloom below. Dead silence in the black darkness. No reply. No movement. No sound.

CHAPTER II
A Rescue

● Hunt felt the urge of a curious excitement. "Is Doctor Conway down there?" he demanded. A bearded man in an atrocious pink shirt regarded him stolidly. "What's left of him. That's chlorine coming out of there!"

They felt a tingling horror. Someone turned on a ventilator that whirled into action with an airy roar. They stood looking at one another helplessly. They knew, these scientists, that one breath of that poisonous gas would be like the kick of a horse—and as devastating.

They were in the grip of a jangling excitement when a fan of light stabbed through the darkness below and bathed the metal steps with silver radiance. It flickered, went out, reappeared in steady brilliance. They strained questioning eyes, their bodies tense. Hunt saw the gleaming eye of a hand torch through the interstices of the steps, saw it waver and suddenly die in tinkle of breaking glass.

He charged through a sudden barricade of clutching hands and clattered down the metal steps into the blackness below. On the way he charged his lungs to bursting with pure untainted air. He was frantically aware that he was making an ass of himself, that he had no light and that he had no idea of the nature or extent of the chamber below, yet no thought of retreat could pierce the jangling barrier of his excitement.

He reached the base of the circular stairs in a frenzy of speed—and fell with stunning force over a recumbent body that lay sprawled at their foot. Instantly he was up groping with swift hands, fighting an inhuman, torturous impulse to breathe. Ten seconds more and he must have air or faint. He felt a tingle of fear. With an effort that made him dizzy he jerked the crumpled and invisible figure into his arms and strained up the narrow stairway. Tiny, malignant lights began to dance before his bulging eyes. One more tremendous heave and he saw clustered heads in silhouette above him. Then he breathed.

The first inhalation was like the shock of a bullet in his throat. He strangled, was conscious of fumbling hands, the jangle of excited voices—and an intuitive conviction that he was about to ignominiously faint.

He awoke, surprisingly, in a large and comfortable bed with his good wife regarding him with hopeful eyes from behind a table loaded with a formidable array of bottles and glasses. Instantly she was at his side. "Tad, honey! Are you all right?" He smiled, tried to speak, found he could not—and abruptly went to sleep.

His second awakening was to shaded lamps and an empty room. He lay quietly, trying to think. Then he remembered. Instantly there were dozens of questions he must ask someone. He tried to rise, conscious of an appalling weakness, and lapsed straightway into a strangling cough that nearly rendered him senseless.

But he had been heard. From an adjoining room hurried a stoutish, elderly man with a capacious chest and long head, who poured something into a glass and dribbled it into Hunt's distended mouth. It was nasty, but effective. His cough subsided into gurgles and faint raspings.

"There!" said the other in a pleased tone. He had the air of a man who had, by prompt and determined action, saved the Republic. "Let me introduce myself. I am Doctor Ellis, technical assistant to Doctor Conway." He drew up a chair and seated himself. "I assume there are a variety of questions you'd like answered. Care to listen?"

Hunt nodded weakly but emphatically. "Very well," continued the other. "First, you have been gassed, as you are no doubt aware. Nothing serious." He nodded reassuringly. "Secondly, your heroism in securing the body of Doctor Conway has returned that tyrannical and dearly beloved individual to our midst. He is very much alive, I might add." He laughed abruptly. "He's a trifle battered, though. Were you conscious of the fact that when you appeared at the top of the stairs you were dragging him by his arm? Well, you were. Quite a sight!"

In the stress of his curiosity, Hunt found that he could manage a weak whisper. "But, doctor, why wasn't Conway gassed just as I was?"

"Because Conway had a lovely little gas-mask on. It wasn't the gas that knocked him out, it was something or other that hit him on the head during the explosion."

Lucille appeared in a flurry of towels and electric pads. "How is he, doctor?" She saw Hunt's open eyes and swooped upon him. "Oh, Tad, are you all right now?" He grinned happily, and managed to imprison a bustling hand.

Doctor Elliot rose promptly. "Sleep all you can, son," he said kindly. "Doctor Conway will be in to see you this evening." He smiled benevolently and left the room. Hunt did not see him go. Two soft arms obstructed his vision.

● It was after ten when Conway appeared in the doorway of Hunt's room. He presented a spectacle of adhesive tape and profoundly baggy pajamas relieved by a dressing gown of an odd red. He was in high humor, and equipped with a flat red piece of metal and a heavy mechanic's hammer. Lucille, in a swirl of black lace and blushes, was feeding Hunt custard with a spoon.

The doctor beamed upon them. "How domestic!" he chortled. "How are you, son?" He tossed the heavy hammer and square of steel on a cushioned chair that staggered to the blow. He regarded his daughter sternly. "Begone!"

"But, dad—" She blushed furiously. "This is my—our room, now!"

The doctor looked slightly sentimental. "Of course! But I rather wanted a chat with Tad. Be only a minute."

When she had gone he carefully locked the door, then he retrieved his hammer and square of steel. He held them up for Hunt to see. "This hammer," he announced, "is a heavy one. This piece of steel is perfectly flat with a circular hole drilled in the center." He held it out for closer inspection.

The tiny drilled hole would scarcely have held a tooth-pick. Hunt nodded, puzzled. The doctor had the air of an elderly charlatan about to work wonders in legerdemain. The latter laid it on the edge of the bed, and fumbled mysteriously in the pocket of his dressing gown. Triumphantly he drew forth a tiny sliver of metal that glittered and flashed in the light. "This, also, we might roughly designate as a piece of steel." He smiled craftily. "Watch!"

He leaned forward and inserted the splinter in the drilled hole of the square slab. Then he laid his assembled mystery upon a nearby table and lifted the heavy hammer. "What," he inquired, "do you suppose will happen when I bring this hammer down on that bit of metal?"

Hunt smiled, and crooked his index finger.

"Bend?" smiled the doctor. With terrific force he brought the hammer down upon the tiny, glittering object. Hunt had time to see the hammer strike full upon the top of the shining steel before the table collapsed in an absurd heap.

Hastily the doctor retrieved the square of steel and held it up to the light. Still in its tiny socket the bright blade flashed upright and unharmed. Hunt gasped. By rights, that grass-blade of steel should have been a bent and twisted victim of the heavy hammer.

"That," announced the doctor, "is what I was producing when some fool gadget or other let loose!"

Blows descended upon the closed door. It was Lucille demanding an explanation of the crash. The doctor called reassuringly and apologetically, and she subsided in a soprano indistinctness.

"Now," continued Conway, "that bit of metal you see there is so much stronger than the best steels that there is no comparison. Its precise strength and density I haven't determined as yet."

Hunt gazed at him attentively. "Beside the point, however," continued the other, "for the past fifteen years I've worked day and night. With pardonable pride I might add that I've cleared up a scientific bone of contention or two. This metal—" he extracted the sliver and held it up to the light, "—has been merely incidental. A plaything, as it were, outside the pale of my regular work. I assume that it has commercial possibilities. I don't know. What I do know is that it will allow me to do something that I've always wanted to do ever since I was a boy."

He laughed and seated himself on the edge of the bed. "Know what I've always wanted to do, Tad?"

Hunt shook his head negatively. He felt faintly amused.

"Go down to the bottom of the ocean!" continued the doctor. He hesitated, then: "Well, is that so silly?"

Hunt grinned. "Not at all, sir!" he whispered, "Sounds very interesting—"

● "The idea of depth fascinates me!" interrupted the doctor. "Just think, over one hundred and ninety-three million square miles of water inviting exploration! They've gone down a few hundred feet, and for the rest contented themselves with soundings, drags and nets. We know fairly well what conditions are in a few hundred feet of water, but what are they at five thousand, twenty thousand? Why, there—"

"But how, sir? At those depths there are perfectly enormous pressures. Aside from the extreme danger, would it be of any practical value to know what the conditions are?"

"We don't know, simply because we are beautifully unaware of those conditions. Might I remind you," he digressed, "that this is a vacation?"

"That's true," smiled Hunt, "I'd forgotten. But what of the instrument of exploration? What sort of machine could—"

Instantly the doctor was off. He planned, explained and argued more with himself than with the unresponsive Hunt. He produced a pencil and drew plans and sketches on walls, bed-spread and a parchment lamp shade. He spouted formulas and pressure computations, he bogged Hunt completely under an avalanche of calculus and physical chemistry. He was deep in marine biology when Lucille knocked and demanded entrance.

The doctor was annoyed, but she was emphatic. "I could hear you all over the house!" she reprimanded when he had let her in. "Besides, Tad should sleep now."

The doctor blustered, and proved that towering individualities often go down to defeat before a woman's eyes. He subsided, and waved a lean hand at Hunt. "See you in the morning. Think over what I've said." He glared with mock dignity at his daughter and marched heavily from the room.

● Hunt was torn between the engaging nearness of Lucille and the fantastic utterances of the doctor, but eventually she fell asleep and he pondered unhampered.

Evidently the famous Doctor Alexander Conway's secret idea of a vacation consisted of being lowered to an ocean bed. The idea *was* attractive; that tremendous unexplored region held tantalizing possibilities. The doctor had sketched spheres, boxes, tubes and complicated electrical and hoisting equipment with the despatch and decisiveness of one familiar with his subject. The while with the naive air of a child displaying hidden treasure.

The more Hunt thought about it, the more he pondered the enchanting and complicated paraphernalia of equipment so dear to the heart of an engineer, the more excited and interested he became. He remembered the appalling strength of the metal the doctor had shown him, and the difficult problems of pressure and porosity melted from his mind. He felt a distinct professional curiosity about that metal.

Then, with the inconsistency of the drowsy mind, he fell asleep planning a home for Lucille.

For three days the doctor allowed him to convalesce, nor did Hunt see him during that time, but on the fourth day he was summoned to Conway's laboratory.

He found the doctor in a sort of improvised office glaring at a ponderous, bald-headed man with a flowing beard. The two were oblivious to his presence.

"Do you mean to say," Conway was shouting bitterly, "that you refuse to collaborate?"

The bald-headed man coughed and assembled his beard. "Not unless there is a definite scientific purpose in the descent!" It was patent to Hunt the man

was wrestling with an appalling temper. "I can see no such purpose."

Hunt stepped forward. "Do I intrude, gentlemen?" They turned and stared at him wordlessly. Then Conway visibly shook himself into congeniality. "Tad, this is Doctor Blackwell, chief of the department of Marine Biology."

The be-whiskered Doctor Blackwell acknowledged the introduction with a snort. "Pity," he glared at Hunt, "your father-in-law has become a tinkerer!"

"Doctor Blackwell," interposed Conway, "has refused to become a member of our expedition. I have endeavored to prevail—"

"Bah!" exploded the steaming department head. "What can you show me? Bobbing around in shallows! Poking at sand bars! I've no time for it!" Hunt discovered afterward that the two indulged in the most ferocious arguments, insulted one another liberally and were inseparable friends.

"Would you be interested," Hunt inquired blandly, "in a descent of—well, twenty thousand feet?" He was conscious of their combined stare of incredulity. "Why not, sir?" he demanded of Conway. "Aside from the novelty of the descent for you, there might well be a definite scientific purpose for Doctor Blackwell."

Blackwell appeared stunned.

"Though I'll admit," continued Hunt, "that a metal as strong as Doctor Conway's would be difficult to work."

Conway smiled expansively. "When I'm about to take a vacation," he remarked airily, "I don't allow trifles to interfere. The metal *has* been worked! The inner shell has been constructed already. Care to see it?"

They followed him from the room. Hunt had visioned at least a month of exhaustive paper work before assembly. Evidently he had not reckoned the resources of the Doctor.

They left the rear of the building and made their way to a small red-brick edifice that stood a short distance from the laboratory proper. Once inside, Hunt saw it to be a marvelously equipped and complete machine shop. Workmen, neatly jacketed, were clustered around a spherical object of silvery, iridescent metal.

"This," said Conway, indicating the partially completed sphere, "is the inner shell, as it were."

"Constructed of the new metal, sir?"

"Yes, a heavier outer covering will go over this."

CHAPTER III

Into the Deep

● The sphere, as nearly as Hunt could estimate, was a good six feet in height with a circular opening of some two feet in diameter midway. Smaller orifices studded the gleaming smoothness at irregular intervals.

At Conway's request a workman hurried away and returned with an admirably executed model of the large sphere. It was placed on a bench, and the three bent to examine it. Drawn on the base of the model was a cross-section of the globe.

"As you see," continued Conway, "there is an outer covering of much greater thickness, approximately eighteen inches from the inner shell. The door, here, is detachable—merely being screwed into both casings, and can be operated internally exclusive of an attending crew.

"Air?" inquired the intrigued Blackwell.

"Here, in tanks between the inner and outer shell, simple valves, automatic or manual, control the oxygen supply. Here are absorbent chemicals for vitiated air." He indicated another diagram. "This is the interior arrangement. There are two searchlights, mounted behind reinforced quartz lenses of suitable thickness, and powered from the surface. They leave three observation windows, also of quartz, purposely staggered to permit angular vision."

They gazed admiringly. Tiny pasted slips designated the ultimate positions of various instruments and equipment.

"What of the signalling apparatus, sir?"

"A telephone line—an integral part of the hoisting cable." The doctor turned and indicated two self-locking hooks on the top of the unfinished sphere. "Two cables. One might—" He smiled and shrugged.

"And the maximum descent?" asked Blackwell. Again Conway shrugged. "I'm inclined to agree with Hunt—the bottom. Tests will determine."

They discussed equipment, suitable spots for test dives and the hoisting capacity of a steamer Conway had chartered. Blackwell became enthusiastic over the possibility of new and enchanting marine forms. "Why at those depths," he beamed, "we might find an entire new realm for scientific investigation!" He ambled away, absorbed in visions.

"He'll go," laughed Hunt. "And now—?"

"Nothing until the sphere is completed. There are one or two things, though—" They wandered off, deep in pressure calculations.

They had reckoned without Lucille. Somehow she discovered they were about to cast away their lives in a ridiculous contraption somewhere on the bottom of the ocean. With cunning forbearance she waited until they were assembled at dinner. Then she announced: "I'm going with you!"

"Certainly!" assented Hunt amiably. "Where?"

"In that balloon or whatever it is you two are building."

"You are not!" He stared wildly at Conway. "Is she, sir?"

"Preposterous!" began the doctor, "This is merely a test dive. We'll be back shortly, and—"

"Well—" She paused as if in doubt. Then: "I am!"

Hunt argued about it. The doctor roared about it. She went.

Two weeks later, at one o'clock in the morning, they stood in a huddled group on a waterfront wharf watching the loading of the sphere. A rusty freighter, patched and painted like a harlequin of the sea, hugged the pier—the blunt cudgel of its funnel rearing up in the gloom like the weapon of a crouched and invisible warrior.

Lights, pulsing in misty aureolas, hurled luminous javelins at the great sphere of burnished metal whose surface disseminated them in a shower of scintillating sparks. Workmen, toiling gnomes in the half-light, were struggling with a snarl of black cable that coiled

down from the darkness above.

Doctor Ellis appeared to see them off. He smiled at their huddled silence. "An odd hour to start," he observed genially. He turned to Conway, muffled and mute in a yellow slicker. "By the way, I found a reporter or two back there. Shall I handle them?" He shook hands all around, boomed conventionalities and faded into the darkness.

There came a noise like the thunder of hammers; the crash and rumble of sheet iron, a wavering column of sound that mounted like black smoke through the moan of pulleys. The great sphere, a glimmering globe of light, was snatched up into obscurity. Blackwell, a bearded restlessness, moved about, supervising the loading of his precious marine equipment.

Conway turned to the others. "Might as well go aboard. Be leaving soon." They approached the cliff-like side of the freighter and Lucille shivered in the damp wind that wandered in from the water, bringing the cool, wild smell of the sea. They were mute before the faint flame of adventure struggling into the life within them.

● To Lucille, the freighter had the general appearance of a junk-yard, but their cabins were pleasant and comfortably furnished. They awoke the next morning to a sea of magic beauty—a boundless carpet of blue that stretched endlessly to the horizon.

It had been decided that the region adjacent to the Phillipines would be the most suitable for test dives and where, if successful, they would hazard the great Planet Deep.

For three days they argued and planned and decided. They crouched over charts and maps, they assembled instruments and materials, they buoyantly assured each other as to the dependability of Conway's new metal. And as the halcyon days followed one upon the other, Lucille and Hunt discovered new and enchanting things about each other.

And then, one cool sun-drenched morning, the poised throbbing of the engines abruptly ceased, and Captain Effinger announced casually that they were over the eastern edge of the Planet Deep.

The sea was very calm; a sea of steel and brass with a gloom like iron in the west. Activity reigned. Conway was everywhere. Blackwell, his bald head glistening damply, supervised the uncrating of his beloved equipment. By noon, when the hatches had been unbattened from the holds, he had erected an admirable marine laboratory in an after cabin. To his lasting regret he was destined never to use it.

Hunt and Conway were absorbed over a chart when a ruddy seaman informed them that the sphere was being raised to the deck. They walked forward, conscious of the immensity and calm of the brooding sea. No land could be seen—only the sharp line of the horizon and a few tossing bits of white that were gulls.

Cables from the short and powerful derrick stretched tautly into the open hold. Captain Effinger, from the vantage point of his immaculate bridge, dropped calm words of instruction to the busy crew below.

Blackwell appeared, flushed and excited. "As nearly as I can make out, we're in about twelve thousand feet of water. Going to make test dives here?"

"Might as well," decided Conway, "Smooth bottom below."

The three of them turned and looked at the blue sheen of the ocean. Hunt felt an exultant thrill. Down there, beneath that dancing surface of light, lay cold and mysterious depths; an eerie world of gloom and blackness, the dank domain of mighty forces and phantom monsters.

There came a puffing groan from the hoisting engines, and the great gleaming sphere rose lustrously from the hold. Cautiously it was lowered to a metal framework mounted on the deck to receive it. The crew swarmed about it and upon it—charging oxygen tanks, testing lights, attaching the cables and power lines, rigging the telephone wires.

Lucille appeared, gazed doubtfully, and contrived to keep out of the way. Hunt discovered her with an exultant: "Isn't it a beauty, darling? Just think, within an hour we'll have gone to depths no living man has ever seen!"

She looked at his flushed face, at the great sphere with the busy crew swarming around it. She felt suddenly cold in the bright sunshine. If anything should happen—. Abruptly she was clutching his arm, her eyes intent and frightened. "Don't go down, Tad!" Her voice was almost shrill with pleading. He looked at her incredulously. "Please don't, Tad. I'm scared! I know something—" Her voice was drowned in the hissing roar of an air line.

Hunt kissed her soundly and emphatically. "Don't worry," he shouted, "nothing will happen!" But he wondered if he sounded convincing.

The roar of the air hose died away in a thin whine of sound. He saw that the crew had drawn away from the sphere expectantly. Conway smiled at him. "She's ready, son!"

They made a last studious inspection. Everything was in order, and they gathered before the circular opening of the doorway. A man sat before a telephone set close to the rail, his head receivers sparkling in the sunlight. "Record all observations," Conway called to him, "and relay all commands to Captain Effinger instantly." The man nodded quietly.

Then they were crawling into the sphere.

● The interior was surprisingly capacious. A low semi-circular cushioned seat added materially to the comfort of the observers. Hunt peered through the crystal clearness of a quartz window at the white, strained face of Lucille. He made reassuring signs.

Then he forgot her at the abrupt clang of the heavy door. The three watched its polished nose slowly revolving toward them as the crew screwed it into place. Then came vague, muffled blows and sudden stillness. They looked at one another with expectant eyes. They felt taut and a little uncertain.

Conway reached up and turned the gleaming handle of a valve. "Oxygen!" he exclaimed. Blackwell was fussing with a thermometer.

Hunt picked up a pair of headphones and adjusted them. "Ready?" he asked. He leaned toward a transmitter fastened to the sloping wall. "All right!" he called distinctly.

With a slow and steady motion they felt themselves raised into the air. A moment more and they were

dangling above the open water. Again Hunt leaned to the transmitter. "Lower!" He saw the deck of the ship, remote and unnatural, the crew standing in various attitudes, apparently staring straight at him.

He caught a glimpse of Captain Effinger on the bridge, and a scrap of white beside him that was Lucille. Then the rusty brown of the hull blotted out all life and movement like a suddenly imposed barrier.

"We are going under," said Conway quietly. There were three observation windows—each framed a staring face.

Hunt saw an iridescent shower of spray and a swirling riot of bubbles suddenly darken the port. Then he was looking up at an inverted bowl of mercury that was the surface of the sea.

Shifting rays, like the groping beams of searchlights, probed fan-wise into the solid world of limpid water. A column of bubbles, mobile diamonds in a robe of light, wavered and strained to the bright dome above. He was suddenly aware of the dark weed-choked hull of the ship slowly rising as if it were some sinister and malignant monster of the depths. Then it disappeared, and all the world melted in an incandescent crucible of sunlight.

A voice, cold and metallic, boomed into his ears. "One hundred feet!" He repeated the depth to the others. They made no reply. He turned again to his port. He was surprised at the brightness of this fluid realm; he felt etherealized as if he were a drifting mote of dust afloat in an infinity of flashing light.

Their descent was slow but steady. The astral voice from the ship above called precise measurements as if from an invisible world far out in space. "Four hundred and fifty," "Five hundred," "Nine hundred."

Hunt waited. "One thousand feet!" He leaned toward the transmitter.

"Stop!" he called. They felt a tiny jerk.

"What's the matter?" asked Conway.

"Best take a look around, sir." The doctor nodded and switched on a dome light. Rapidly they examined the solid walls, the blunt nose of the door, the valves and unions. Everything was all right. Hunt switched off the light. "All right," he directed, "Lower us."

Blackwell was busy with pad and pencil. He wrote without looking at the paper. In this green-dark tumult of shifting lights and shadows was a host of life. Nightmare shapes flitted before him, silver showers of tiny fish flashed by the ports with the speed of bullets. Here were his beloved denizens of the seas in their natural environment, in all their pure and dazzling colors. He was seeing them as no other naturalist had even seen them. There was a glow behind his rapt gaze; like he was realizing an impossible dream.

There was no sound. They were suspended in a sea of frozen silence. To Hunt alone came mutterings of another world. The water was an eerie, unearthly blue now; thin rays of sunlight were faint and misty—stars hung like tapers in a high temple.

Conway was reading a thermometer that hung in a tube of quartz close to the port. He turned and peered through the gloom at the curving walls of the sphere. He placed his hand caressingly on the chill metal—and thrilled at the thought of the giant pressures striving to crush them.

This child of his mind, this product of his genius, this gleaming metal whose power was greater than those solid walls about them was insinuating itself each passing moment more deeply into his affections. He was very happy.

CHAPTER V

Cold Depths

● The exquisite nameless blue faded into a colorless gloom as they descended. Then it was black—black as the deepest ebony with only an occasional phosphorescent spark from some deep sea dweller to relieve the blank and utter darkness.

"Four thousand, five hundred," announced Hunt, "Shall we go on?"

Conway switched on the dome light. Everything was in order. "Why not?" he smiled. Blackwell was silent and writing steadily. Not once had he looked at the paper on which he wrote.

The dome light was extinguished, and Conway groped in the blackness for the switch that controlled the searchlights. They snapped on in dazzling twin shafts of light that probed the fluid night like swords of living flame. Strange, distorted phantoms, caught in the incandescent floods, flicked from sight with the speed of thought. The glare sent a blinding thrust into the men's eyes.

"Six thousand feet," called the earphones, "Are you all right?" Hunt leaned forward. "Yes, we will be coming up soon." He tried to sound cheerful and very calm, but it was hard to forget that cruel dome of water above them.

After a moment the cold voice of the linesman sounded again. "Six thousand, five hundred feet!" Hunt glanced at the others faintly outlined in the reflected glow of the lights. They were absorbed and tense before their ports, and he checked an almost panicky impulse to stop the descent. "Seven thousand, five hundred." He waited, cold in the grip of imagination, his eyes darting down the twin tubes of light.

He felt a little chill of fear. If anything should happen now—. The slightest crack or crevice and the dreaded monster of pressure lurking all about would squeeze them to shreds. "Eight thousand!" He leaned forward. "Stop!" Again the tiny jerk.

"Eight thousand feet," he told the others. "Do you think we should go on?"

Conway turned on the dome light. Blackwell stirred and thrust out his cramped legs. "Why not?" he asked, "Do you think there is any danger?" His face was flushed—he was tasting the triumph of discovery.

"I think not," replied Hunt, "I don't know positively. What do you say, sir?" he asked of Conway.

"I say, go down! I think we are perfectly safe."

Hunt turned off the light and called: "Continue the descent. We are going to the bottom."

Once or twice in the ensuing moments he thought he saw the suggestion of gigantic, hovering shapes suspended just beyond the farthermost reach of the lights, but he was not sure. The psychic sensing of a lurking and hidden presence was so strong as to amount almost to certainty. But strain as he would he could see no more than the vaguest suggestion of a hidden bulk.

"Eight thousand, five hundred feet," came the voice. He scarcely heard. He had seen a wavering blackness,

a subtle deepening of the solid walls of night around them. But never once did that hovering, cobalt mystery come within the domain of the lights, never once could he fasten within his mind even the shadow of form or contour.

Yet the conviction of a lurking and malignant presence persisted. In this dark and lonely world of cold and creeping death what fabulous monsters, what visions of horror might hold sway? His face was pressed to the chill smoothness of the quartz window, his ears half deaf to the intermittent call of the linesman, his body taut. And then he was suddenly conscious that what he was striving to see was gone—dissipated like the lingering shadow of a dream. He relaxed, the palms of his hands moist and damp.

"Eleven thousand, five hundred feet!" He started and bent swiftly to the transmitter. "Stop!" he said sharply.

Again they made a minute inspection of their metal prison. Nothing was changed; nothing would indicate that their little sphere was in the giant grip of pressures that would crush a battleship with as little effort as a man treading upon an ant.

"It seems incredible!" marveled Blackwell. "Two miles of solid water above us—" He peered out of the port, "I'd go carefully here. Wouldn't want to touch rock or anything on the bottom."

Conway was silent, studying the thermometer. "Thirty-one degrees Fahrenheit!" he announced suddenly, "Bit chilly out there—Well, down we go!"

"Lower us," called Hunt, "but very slowly. We are nearing the bottom. Stop us instantly at my signal!"

The linesman's voice seemed remote as the stars: "Very good, sir."

● The twin shafts of the lights had a clouded appearance now—a pale grey mist seemed to dilute the clear water. "Globigerina ooze," announced Blackwell, "Fine-grained calcareous deposits from marine organisms. The whole bottom will be an ooze of the stuff." The haze was thickening—the lights could penetrate but a few feet.

Blackwell reached over and touched Hunt's arm. "No deeper, son," he advised quietly, "Can't afford to get stuck in this stuff!"

"Right, sir!" Hunt's voice was sharp. "Stop!" he called, "What is the reading?" There came a murmur of voices, then very brisk and clear: "Eleven thousand, eight hundred and nineteen feet, sir!"

Hunt switched on the dome light and grinned at the bewhiskered Blackwell, at the silent Conway. "Well," he sighed, "we've made history!" he reported the depth the linesman had given him.

They looked at each other in silence. They were in a world no man had ever seen, a world as remote to human habitation as the infinite stars, a world of ponderous and crushing strength—a cold and merciless adversary held at bay by a bubble of gleaming metal.

They felt a thrill of awe before this assembled and concrete evidence of a man's genius, this subtle blending of the raw forces of the earth into an accomplished whole, this globe of taut strength whose sinews were forged in the torturous fires of a man's mind.

Now that the descent had ceased they were aware of a slight lift and fall to the sphere—very slow and regular as if a dull pulse in the fluid monster around them was lifting and subsiding to the intermitten urge of an invisible heart.

The calm voice of the linesman broke their brooding silence with a thin whisper of sound. "Captain Effinger thinks you should come up now, sir. There is a swell running. Are you all right?" Hunt was instantly alert. "Yes, we are all right. Haul us up!" He turned to the others. "Sea running up there."

Conway's deep sunk, burning eyes were curiously intent. "To-morrow," he said quietly, "we are going to the bottom of the Planet Deep. Thirty-two thousand, one hundred and fourteen feet! Who knows what we shall see?"

There came a jerk. The ascent had begun.

The radio of the *Oliver* broadcast the interesting news that Doctor Alexander Conway and his associates had penetrated the Pacific deeps to the unheard depth of eleven thousand, eight hundred and fourteen feet.

Polite and slightly skeptical messages of congratulation were relayed to the *Oliver* from a San Francisco newspaper (earnestly desiring more information and the assurance of priority in the story) and from a small and select group of scientists who were, conceivably, interested in such an achievement.

By the time a three-day blow had abated and the *Oliver* had maneuvered to a new position directly over the Planet Deep, the operator announced that the descent had captured the public fancy. Messages were received from syndicated presses who hinted at the remunerative advantages of exclusive features, and from politely anxious editors of rather notable periodicals and magazines. The latter gentlemen made it clear that they would be flattered, more than flattered, if the busy Doctor Conway could see his way clear to grant interviews for the benefit of an entranced public.

The indignant and commerce hating Conway refused all offers with emphasis and finality, but he did acknowledge the congratulations of a few obscure and hard-working scientists. Then he prepared for the Planet Deep descent.

The sphere had been examined minutely for flaw or blemish, but no trace was apparent of the terrific pressures that the globe had been subjected to. On the morning of the third day they gathered solemnly in Conway's cabin.

● They studiously conferred over a chart of the Planet Deep—and discovered that appallingly little was known about it.

"The depth is too enormous to permit positive knowledge of the topography," explained Blackwell. "It is known to represent an area whose origin was due to faulting in the earth's crust many ages ago."

"Volcanic?" asked Hunt.

"Possibly so. At any rate, an area of exceptional subsidence. Movements such as have produced these areas are evidently still in progress on the ocean bottom."

"According to the chart," said Conway, "the bottom is clay. We should be able to approach quite closely."

Lucille appeared, very cool and lovely in a wisp of white dress, and earnestly desired to be listened to. They gave her a preoccupied attention.

"Are you really going down?" she demanded at large.

"Now, honey—" began Hunt.

"But I should think you would be terribly cramped in that little globe."

"Nonsense," defended Conway. "Why, there's room for another three people in it!"

"Dad, do you think it's safe to go so deep?" Her smooth forehead wore a tiny crease of worry. They all snorted in unison. "Safe!" They bent upon her benign smiles of maturity and wisdom. "Most certainly it's safe!"

She sighed contentedly. "Then I'm going with you!"

They had been trapped, and they knew it.

Once more they stood before the circular door of the sphere while Conway impressed the linesman with the desirability of instant obedience to his signals.

To Hunt this second descent was uncomfortably near to a flaunt in the face of Providence, but he dared not voice his doubts to Lucille. He consoled himself with the thought of the success of the first dive and reasoned that the second would prove as satisfactory. He glanced at the placid sea and fervently hoped so.

Then they were inside watching again the slow advance of the metal door as it revolved into place. Again came the muffled blows. This time it was Conway who adjusted the phones to his massive head. He called the signals, and shortly Lucille was thrilling to the liquid beauty around them. She said no word but held tightly to Hunt's hand, her amber eyes brilliant with wonder and awe in the reflected glow of the port.

Once more they watched the waning glory of the filtered light, and when the fairy wands of color faded and died, Blackwell switched on the searchlights.

At fifteen thousand feet Conway called a halt.

"I don't know whether to be scared or not!" laughed Lucille. "There seems to be an unnecessarily large amount of water to drown in—"

Blackwell chuckled drily. "Don't worry, child. Nothing will happen."

"That we'll know about!" added Hunt to himself. Aloud he said: "Doctor Blackwell is right, dear. Don't be frightened." As an engineer Hunt knew that the metals protecting their fragile bodies could withstand many times the pressures encountered in these submarine depths, but as a human being he was a prey to instinctive doubts and fears.

They examined the sphere minutely, and to their vast relief found not the faintest trace of fracture or crevice. Presently Conway called to be lowered.

"There's really no need for these stops," he mused aloud, "We'd collapse like an egg-shell if anything *did* give 'way. We'd be lucky if we even *knew*—"

In the darkness Hunt plied his foot to a vulnerable portion of the doctor's anatomy. The latter grunted audibly, but Lucille had heard.

"I don't care," she whispered in Hunt's ear. "I'd rather die down here with you than be on the ship knowing—" His lips silenced her with tenderness and finality.

CHAPTER V
There Is No Water

After that no one spoke. In the reflected glow of the lights their faces showed drawn and tense—white disks floating in curious radiance against the gloom and blackness of the depths.

They alone were the pioneers in this world of glass-like immobility, they alone must be the first to pay the ultimate price of error or miscalculation. There were no precedents to hearten them, no lessons learned at tragic cost to others, no rules nor code of conduct to guide them—to nullify the dread of the merciless adversary whose liquid hands sought to crush them.

To Conway it was the fulfillment of an old and cherished dream. If its attainment was stained with the black taint of death, if this invasion of an ancient and forbidden realm threatened the toll of ultimate extinction, it but colored the reality the brighter for him. Too often had he delved in mysteries, too often had he probed into the shadows of destruction to feel other than a calm in this cloying gloom of doubt and uncertainty that hung about them like a pall.

Blackwell, oblivious to the others, crouched in an attitude of motionless attention, his eyes straining to catch a glimpse of life within the narrow bands of light. It is doubtful if fear or anxiety clouded his thoughts. Here was a zealot, a bearded symbol of unremitting toil and thankless labor, a compiler of dry and endless tomes of species, a classifier of far-flung life—seeing the black world of his dreams as no other man had ever seen it.

Twice more they stopped and in silence made minute inspection. Then came the call: "Thirty-two thousand feet!"

"Stop!" called Conway. He switched on the dome light and smiled vaguely as Hunt blinked at him in the bright glow. "Thirty-two thousand feet! We're close to bottom—"

"Turn off that light!" snapped Blackwell abruptly. They looked at him in astonishment. He was crouched before the observation port, his dark eyes hard and intense as he stared out into the water. "Turn it off!" he repeated. He did not look at them. "At once!"

Mechanically Hunt reached up and extinguished the light. "What is it, Doctor?" asked Lucille. Her voice was calm but Hunt was painfully aware of the vise-like grip of her fingers on his hand.

"I saw something," said Blackwell quietly, "Something that has no business down here! I seem to have lost it, but—Ah, there it is!" His voice rose in a sharp wave of sound. "Look at it!"

They crowded to the windows, their bodies tense with expectancy. The dazzling ray of the light cut a swath of brilliancy through the stygian blackness, its javelin-like beams throwing into sharp prominence a strange and incongruous object.

From some remote and indistinguishable region below them sprang a slim finger of stone—a delicate and fragile filament straining upward through the radiance as if groping in tragic blindness for the far-flung vault of the heavens. No trickery of nature, no vagary of chance produced this smooth tracery springing tautly into the field of light.

From Conway came a dry gasp. "Somebody made that thing! How do you interpret it, Blackwell?"

"Undoubtedly of human workmanship. Yet—" His voice died away in puzzled silence. They knew his thoughts. Each was asking himself the inevitable riddle. It was ridiculously impossible that this thing be the handiwork of man, that upon its smooth flanks tools had been applied by knowing hands, that from shapeless rock had been hewn a thing of sleek beauty.

Hunt felt a thrill of awe before the inexplicable. He

told himself that it was fantasy, a distortion of appearances, a too hasty interpretation of a similarity, to liken this shaft of stone to the ancient art of man. Yet he knew, as positively as did the others, that he was viewing a planned and executed piece of masonry—a polished column reared in thirty-two thousand feet of solid water.

● Blackwell was the first to speak. "I would suggest that we be lowered very carefully. The ship above us is undoubtedly subject to some drift."

"Then we'll lose sight of that shaft out there," observed Hunt. "Whatever it rests on ought to prove interesting."

"There'll be others," replied Blackwell succinctly.

"What do you mean, doctor?" asked Lucille.

"Well, it would be ridiculous to assume that this shaft had dropped from a ship—and after traversing thirty-two thousand feet of water come to rest in a perfectly vertical position. No, this column was erected down here! There will undoubtedly be others nearby."

"Quite logical," agreed Conway. "We've merely stumbled upon a long member." He transmitted the necessary orders to the linesman. They were lowered very slowly—the beams of the searchlights alternately bathing the smooth stone of the shaft in brilliant light.

Then, with startling abruptness, there emerged from the darkness below them the fractured terminals of two other shafts.

"There you are!" cried Blackwell triumphantly. "Mute evidence of a buried—" The sphere suddenly trembled and rang with a curious bell-like note.

"Stop!" called Conway instantly.

"We're probably directly over a number of columns," remarked Blackwell. "We can't afford the chance of becoming entangled with them."

"But what on earth—!" began Hunt, and stopped. He pointed mutely. They crowded to the ports.

For a moment they stared tensely, then with a swift motion Conway switched off the searchlights. But the utter blackness of this lost submarine world did not close in upon them; a subtle glow, translucent and golden, suffused the water in all directions. Blackwell gasped audibly.

The rest were silent. There was nothing to say. Here, in this silent and barren citadel of nature, in this lost realm, ruled by a darkness kept inviolate since the dawn of time, was light. A mighty explosion of leaping, spouting flame could scarcely have startled them more.

The glow appeared to have no source, no area of greater intensity. It was as if the chill walls of water were of themselves glowing with lambent color.

It was not a mental illusion or a temporary upsetting of their collective sanity. They crouched as if carved of wood, victims of a chill uncertainty—an instinctive attitude of defense before a mystery clothed in the dread robes of these ancient waters.

To Conway, alone, came a strange relaxation. His cold and analytical mind surmounted the blank amazement that had momentarily held him. Overriding all other emotions was an insistent demand for an explanation. A dozen interpretations flashed before the delicate screen of his mind, to be probed by the sharp blade of his logic, to be discarded in baffling inadequacy.

"It's growing brighter!" cried Hunt, "You can see the bottom!"

Below them, emerging from obscurity with the slow vagueness of a camera focusing, appeared an area of reddish-brown color.

"It's bottom, all right," agreed Blackwell, "Red clay and—"

"Look over here," interrupted Conway, "There is the source of the light!"

Objects on this dead sea floor were to be distinguished clearly now, and Conway's lean finger pointed tensely at a tumbled mound of hewn stones, ponderous and deeply imbedded, from between whose interstices leaped in golden fans the soft and permeating light.

Here was mystery personified, tantalizing and beckoning, a sinister and subtle challenge to the prying inquisitiveness of man. Here was a submarine enigma guarded from discovery by the twin giants of titanic pressure, and the straining walls of metal from behind whose chill plates these men could only gaze—and wonder.

● But if the source of these probing rays was a guarded and hidden secret, the rays themselves were not not, and, moment by moment, the watchers saw them increase in intensity until, at the end of a quarter hour, they had attained a blinding luminosity that would have dwarfed their searchlights as the sun would a smoldering spark.

No longer was this deep-flung world hidden by the cloak of impenetrable darkness; all about them lay the somber and slumbering creations of long dead hands. Pillar and plaza and graceful terrace were etched with exquisite clarity in the golden flood of light. Here a mosaic of matchless beauty, there a tumbled statue, its pedestal yet proudly rearing its slim loveliness beside the fallen jewel of sculpture which once it bore. And over all, carving and street and curving balustrade, lay the threat of the slowly drifting red clay. Already had its cold and tenuous fingers crept in blindness across the shimmering tile of the plazas, already had its red stain drifted over step and stone and fluted shaft.

And, moment by moment, the light grew stronger.

Never once had Conway removed his eyes from the tumbled heap of stone from which sprang the light. Mutely fascinated he had watched the livid rays—and now he saw an unbelievable sight.

In the broad cataract of stabbing flame the red clay of the bottom assumed the appearance of smoldering coals, and that red clay was doing a peculiar thing. It was lifting as the iridescent sheathing of a bubble lifts to the urging pressures within; slowly, inexorably it was raising itself in a mound-like protuberance above the level of the surrounding bottom. For a moment he suffered the shock of a crawling fear—a muted panic—before this straining convulsion of nature.

What, if this heaving of the solid bottom, this torrent of hidden light, portended one of those swift and merciless submarine explosions whose shock and titanic power jarred the world? These writhings of the giant that lay sleeping in the tortuous fires of the earth's interior had leveled continents, thrust up mountains, changed with effortless ease the contours of whole ocean beds. What if this colossus was once again ready to spew out the poisons that clogged his labored breathing?

He half leaned to the transmitter to give the word for ascent when Blackwell touched his arm.

"Are you aware of what is happening out there, Conway?" he whispered.

The doctor glanced at Lucille and Hunt who were motionless and enthralled at the opposite port. Their low voices were tense with wonder and excitement.

"I anticipate an explosion here," he answered quietly. "There is every indication."

"I don't!" whispered Blackwell emphatically. "Watch that red clay in the path of the light!"

Puzzled but intrigued Conway did as he was bidden. No sooner had he settled, in close scrutiny of the red mystery, than he saw what had hitherto escaped him. From somewhere, beneath the scarlet expanse, gases had collected in tiny pockets, and now these imprisoned bubbles were popping on the surface as do bubbles of marsh gas in some quaking bog. A dome of viscous red would suddenly rise in the red clay, and breaking, leave a tiny crater to mark the miniature explosion.

For a space the full import of these bursting bubbles of imprisoned gases was lost upon Conway—and then a wave of understanding swept over him. He stared at Blackwell in mute astonishment.

"Exactly!" chuckled the other. "You see? In thirty-two thousand feet of water you may be sure no bubbles of gas would have escaped absorption. And those bubbles *burst!*" He paused. Then: *"Into air or a partial vacuum!"*

But Conway was again staring out of the port. "We're in the path of that light," he said abruptly. "Those bubbles are probably carbon dioxide."

"Very likely. And now look at the thermometer!"

Conway's eyes swept to the quartz tube that held the instrument. He peered. Then he gasped. It registered ninety-two degrees Fahrenheit!

"Within the path of that light," said Blackwell distinctly, *"there is no water!"*

CHAPTER VI
The Metal Mystery

● Before Conway's deep-sunk eyes had unfolded many a secret of imponderable forces, before his superlative technique the barriers that had clothed in secrecy weird and unnatural phenomena had been swept away. Mystery and revelation had gone hand in hand across the span of this man's years; he had stood often in awe before the forces he had unlocked. But never had he reacted as he did now before this eerie wonder that held back the countless tons of the sea with a soft and luminous hand.

And then, involuntarily, his eyes swept to the circular door of the sphere. He was aware of Blackwell's silent scrutiny. They looked at each other. "Dare we?" whispered Blackwell.

For a moment Conway was silent. Then: "Why not?"

"If there's a partial vacuum out there," returned Blackwell, "we'll hear the escape of air. Time enough to correct the—"

"Try it!" interrupted Conway. "This is a chance in a million! The rays may be destructive, or if there is air it is probably poisonous. Though it's entirely beyond me why there should be any air at all! If those rays repel water, what of the water in our bodies?" He heaved forward on his knees, the headphones jerking to the floor with a dull clatter. "We'll find out, Blackwell."

They grasped the circular handle of the door and twisted mightily. It moved with smooth resistance. Then Hunt turned, stared, and was on them with the swiftness of a striking snake. "Good Heavens, sir! What are you trying to do!" His lean strength had brushed them from the door with quick ease. He stared at them with questioning, anger-clouded eyes.

Conway smiled ruefully at Blackwell. Then he explained rapidly and clearly. He showed Hunt the bursting bubbles of gas, and smiled again at his son-in-law's blank amazement. Lucille was silent, her great eyes wide and bright, her hands gripped tensely together beneath the curved whiteness of her throat.

For a moment Hunt hesitated, then he grasped the gleaming metal of the door lock in his lean hands. Slowly the burnished nose revolved away from them, slowly the potential forces of death and destruction crept toward them.

Five times he halted the dread revolutions, five times they bent in dead silence listening for the escape of air, five times they sniffed for deadly gases before the circular indentation. But neither of these phenomena were detected, nothing was sensed that would have sent the door whirling back to position—and safety.

And then, beneath the crushing weight of thirty-two thousand feet of cold sea water,* the door was swung from its home bed—and four people were *not* crushed to shapeless shreds, were *not* flicked from life on the poinard tip of leaping pressure.

Hunt drew back, staring wordlessly at the open door. It was a terrific moment. Once the full import of that open doorway was borne in upon them they were struck motionless as if ravished of thought or action before this ultimate gesture of temerity. Their minds, plundered of the comforting security found in all things familiar, were appalled—a swirling chaos of numbing apprehensions before the flaunt they had hurled in the cold face of death.

It was strange, this instant of complete immobility. Stranger still the mental inertia that gripped them with hypnotic force. That they had deliberately invited the agencies of complete and awful destruction to work their merciless will upon them seemed the overthrow of reason and the triumph of idiocy.

With a conscious effort Hunt threw off this paralysis of fear that had held him, and turning to Conway said: "Well, now what?"

"Have a look around out there," replied the doctor quietly. "I'm going to find out where that light comes from!"

"You are not!" cried Lucille. "Do you think I'm going to sit here and let you go out there?" She reached over and grasped the doctor's sleeve. "Dad, don't be idiotic! Why, the light or whatever it is, might fail at any moment."

● Blackwell glanced at the bottom from the open doorway. It could not have been more than a six or seven-foot drop. With startling ease he swung himself through the circular opening—and dropped to the red sea floor with Lucille's piercing scream of fright ringing in his ears.

For one fleeting instant he suffered the stab of a new fear—he felt the soft clay slowly rising with gentle pressure around his shoes. But it was solid beneath an inch

*The pressure at 32,000 feet depth would be approximately 14,000 pounds per square inch.

or two of viscous mud, and he laughed up at them with quick confidence.

"Care to collaborate in this little expedition, Conway?"

The doctor was leaning half out of the sphere, the shock of Blackwell's abrupt departure slowly fading from his eyes. "You bearded idiot!" he burst out. "Are you bent on suicide?"

"Rather comfortable form of suicide," returned Blackwell composedly. "Didn't you propose to have a look around out here?"

"Well—" The doctor withdrew into the sphere. To Blackwell came the sounds of a heated discussion. Then he saw the sphere drop slowly toward him. Its descent was halted a few feet from the ocean bed, and a moment later Conway was standing beside him.

Hunt reached out and swung the heavy door into place. "Quite some daughter I have," remarked the doctor. "Hunt's hanging on to her now—. May a kind Providence watch over us if the *Oliver* starts to drift! The linesman said there was a flat calm above. Most extraordinarily fortunate—"

"Man, come on!" interrupted Blackwell. "We're wasting the most precious seconds we've ever had!"

He was already hurrying through the sticky clay toward the light. Conway followed, his mind almost refusing to record the riot of emotions rising within him. They reached the massed rocks in shuddering nervousness, unaware that they were perspiring profusely, that their faces were strained masks of whiteness.

They stumbled shakily over the smaller stones, their eyes sweeping the eerie and astounding brilliance that poured from the rocks ahead. Years later they were to analyze their frantic haste, their idiotic effrontery before the titanic forces held in bay by what power they knew not. They were never to adequately explain it—this astonishing phenomenon transcended their powers of understanding.

Blackwell scrambled over the first of the larger rocks, his hands slithering over their rugged flanks.

"Hurry, Conway!" he gasped. "There must be a hollow of some sort in back of these stones!"

He was right. Several rents were discernible now. The formations of the rocks proved that they had been indiscriminately scattered—yawning fractures gaped emptily in their ponderous bulks.

"These rocks were once piled one upon the other," observed Conway. He spoke hurriedly, breathlessly, his eyes darting over the tumbled stone.

Blackwell had stopped before a fissure of ample width to admit his body. "An explosion did this," he flung over his shoulder. "At any rate, a tremendous shock." He shaded his eyes and peered into the blinding luminosity that poured from the crevice.

Conway joined him, fumbling and breathless. "We can get through here," said Blackwell. "I think there's room—" He felt Conway's lean hand suddenly pressed to his shoulder.

"Stop a moment, Blackwell," he said quietly. "Look back there."

"Are you crazy, Alex?" cried his companion. "This is no time for—"

"Look back there!" repeated Conway with quiet insistence. "See that sphere? See the faces of Lucille and Tad at the ports? See the—"

"Well—?"

"Well, we may never see it again!"

● They were not thirty yards from the sphere. Yet to Blackwell came the sudden realization that no power on earth could guarantee his safe passage back to that haven of wrought metal. The sphere had the incongruous appearance of being suspended in a brilliantly lit and irregular room; the golden flood of light nullified all visual efforts to scan the solid walls of water that hemmed them in. Should the titanic power of the ray be lessened for one instant—.

They presented an impossible picture standing there amongst the rocks—a light-framed portrait of fantasy and of dreams. For one brief instant the absolute helplessness of their position was brought home to them. Yet they were possessed of an unreasoning and unreasonable curiosity. And this, more insistent and demanding than the instinct for retreat, overrode all other emotions.

With one accord they turned their backs on the sphere and, with Blackwell leading, entered the narrow confines of the crevice. Here, within the living rock, they felt a semblance of safety—a purely psychological dissipation of the fears that dogged their minds. They pushed forward more eagerly, more intently, the tautness gone from their muscles, their steps no longer fumbling as if in blindness.

The crevice was fairly straight and very deep. For what seemed an interminable time they traversed this narrow corridor in the riven rock. Then, panting and streaming with perspiration, they suddenly emerged into the open—and stood in blank and staring amazement before the source of the golden and mysterious light.

Neither of these men had found the existence of this dead and submerged city that lay about them an inexplicable phenomenon—they had been astonished and straightway greatly curious, but not unmindful that great cities had long been known to slumber beneath the shifting seas. But here was a thing that no man could fit into the graduated scale of human progress.

Before them lay the ultimate mystery—a thing of glowing metal like a gigantic projectile. It lay as if wounded and spent amongst the jumbled masses of shattered rock, its sleek body encased in an aura of light as if yet hot from the bursting flames that had hurled it forth.

"Good Lord!" gasped Conway. "What *is* that thing?"

He neither expected nor received an answer. They moved forward in entranced wonder, oblivious to all else but this enigma their daring and their science had discovered to them.

Beside the curving wall of radiant metal they stopped as if powerless to do other than stare at it in puzzled wonder. Then Conway reached forth a lean arm and touched the glowing metal tentatively. He was prepared for almost anything! a burn, a searing shock, but it was merely comfortably warm beneath his hand.

"Why, this is a room of some sort," said Blackwell suddenly. "See, the walls and roof are all of hewn stone. Look at the floor—what was once a design. This thing—" He paused and glanced rapidly at the scattered rock. "This thing crashed through the walls and into the room. No doubt about it!"

They clambered over the stone to the rear of the

great projectile, and found it almost buried beneath the rock dislodged by the shock of its passage.

"Here is where the light is concentrated," observed Conway. From a curious shutter-like arrangement built into the rear of the metal giant a steady stream of golden light poured forth bathing the rocks in brilliant light.

"There must be some way to get into this thing," decided Blackwell. "Let's have a look around."

They began a circuit of the gleaming sides and found no mark or crevice of any kind. "Maybe there's something on the other side," suggested Conway. "Hardly expect anything up here at the nose. More likely—Why, look at the nose of this thing, Blackwell!"

They stared anew. Nowhere discernible on the symmetrical prow was the slightest mark or stain—yet this metal giant had crashed through thick walls of solid rock. Conway's new metal, as compared to this, was as rubber beside steel.

Blackwell merely shook his head wordlessly and made his way to the other side. Instantly he discerned the circular crack that ringed an entrance into the metal wall. At his call Conway hurried to his side. In the exact center of the door was a burnished knob similar to the combination dial of a safe. Blackwell grasped it firmly and pulled. Then he twisted. Nothing happened—it appeared immovable.

"Push it!" suggested Conway.

"It gives a little, but—" A hissing roar violated the brooding quiet of the great room. The two men were thrown together violently in a rushing torrent of air that hurled them against the slowly receding door. For a moment they were held against its yielding bulk as if glued to its smooth surface, then the invisible force of the air lessened and they were able to stand. The door had quietly receded a foot or more and then slid stealthily to one side. A moment more and they stood within the glowing monster of metal.

"The thing must have been absolutely empty of air!" surmised Conway. "How anybody could—" He stopped, enthralled by the sight before him.

CHAPTER VII

The Face in the Mirror

● Everywhere, a fairyland of shifting, colored lights. Hidden beams of scarlet bathed the broad faces of dials and meters, fans of amber and of purple swathed long rows of buttons, switches and softly gleaming tubes of golden metal pulsing beauty. Everywhere, a maze of wires, machines, wheels, lights—an orderly confusion of strange, unearthly mechanisms.

"Impossible," whispered Blackwell. "Absolutely impossible!"

"There's a door over there," pointed Conway. "Must be other rooms—"

They moved cautiously around taut wires and slim, straight rods of burnished beauty. "Be careful when you open this door," suggested Conway. "Very likely this whole affair has been exhausted of air."

The door, smaller than the entrance, was motivated by the same unseen mechanism. Again Blackwell pushed the small knob, again came the quick rush of air followed by a crashing sound in the room beyond. "Did some damage that time," said Blackwell.

They entered upon a large, spacious chamber replete with the same bewildering array of shifting lights and colors. Here, upon the opposite wall, was fixed a great square mirror of flashing clarity. It caught the eye immediately—all else in the room seemed subjugated to its commanding presence. On its flawless surface was imprisoned all the breathless beauty of the rainbow colors—a kaleidoscopic vision of superlative loveliness.

They were startled at first to see their gaunt and alien faces mirrored before them. "Whoever the owners of this outfit are, I see that vanity enters into their personalities," observed Blackwell.

"There ought to be some one about—. Wonder how long this thing has been here?"

"A day. A month. Most likely a hundred years."

"But these lights," speculated Conway, "must be dependent upon some sort of energy—. Nothing here would indicate a long passage to time."

"You forget there was no air in these rooms. That reminds me! If anyone *should* be about they ought to be in a splendid state of preservation!"

"There must be other rooms," said Conway with sudden animation. "Let's have another look around!"

They stared around them, but no other door was discernible. "That looks like a port or something over there," pointed Conway. They moved across the room to a round opening set into the metal walls. It appeared uncovered, but on closer inspection they saw it to be covered with some transparent substance similar to the quartz windows of the sphere.

"No sign of a door," said Conway. "Wonder what—"

"Great guns, Conway! Look through here!"

They pressed their faces to the warm surface of the thick covering. "What on earth is it?" whispered Conway. They could see a small, almost bare room on the other side. On the floor lay a human-like figure encased in what appeared to be metal armor. Beside it stood an elongated bottle in a metal container from which a flexible tube led to the recumbent figure.

"That tube connects with the armor about where its mouth ought to be," said Conway. "Nothing in the bottle now—"

"Probably been empty for years—. Know what I think? Whatever was in that bottle was a preservative of some sort. Maybe air. Maybe not. Remember this whole outfit was exhausted of air."

"But why exhaust it of air?" speculated Conway. "No earthly reason—"

"May not be earthly, Conway."

"You mean that this thing—"

"Why not? This whole contraption is unearthly! You couldn't find its counterpart anywhere on the globe. Maybe the people that ran it didn't need air!"

"But how could they support life? Where could they have come from? If they *did*—"

"Don't ask me, Conway," smiled his companion. "I can't boast of having known them personally. What's that lever down there?"

● Conway glanced down at a small lever or handle that protruded an inch or two above the metal floor. He reached down and pushed it along a small slot in which it fitted. For a moment nothing happened, then with a report like a small field gun the covered port sud-

denly opened and swung inward on heavy hinges. Air whistled and roared through the opening. Then all was quiet again.

Conway looked through the opening and turned to Blackwell with startled eyes. "How do you account for that?" he demanded. "One minute it's—"

Blackwell shouldered him aside and peered into the other room. The armored figure was gone, the glass-like container that stood beside it lay in a scattered heap of powder, and the flexible tube had been reduced to little more than a thread. "Air pressure, of course!" said Blackwell. "Whoever that was laying there is probably a lot of dust swirling around the room by now!"

"I feel a little crazy!" said Conway. "Let's look at some of this equipment and then get out of here!"

They moved away and examined the intricate machines that lay about them in wondering silence. Inevitably their prying curiosity overrode the dictates of prudence. Levers were pulled and buttons pushed. Lights flashed softly or sharply to the mysterious impulses they loosed in the machines that studded the room. Once a curious flute-like note was heard followed by a silvery shaft of light that flashed diagonally across the room. It blinked once, and disappeared.

Which of them was responsible for what shortly happened they never knew—some unknowing push or pull and forces incalculable were set in motion. They had straightened from their absorbed scrutiny of the strange instruments, when Conway's eye was caught by the great mirror.

"Look there, Blackwell!" There appeared on the surface a vague blurring, a subtle blending of detail that a moment before had been mirrored with absolute fidelity. The surface appeared to be losing its refractive qualities and was assuming more and more quickly a dark shadowiness in which only the brightest lights in the room were capable of being detected.

"What do you suppose—" began Blackwell. Then he stopped and laughed softly. "You don't, by any chance, suppose that this is merely a bad dream? That—"

"Very likely— This is all absolutely inexplicable to me! It seems impossible that we are actually seeing these things— Look at the mirror!"

It was of ebon blackness now. No slightest trace of light relieved its blank expanse. Yet something, some curious movement of the blackness itself seemed in evidence. Then, far down in the right hand corner, appeared a single pin-prick of light. It grew steadily brighter and larger as it followed a curved path that ended in the geometrical center of the mirror.

The two men watched the tiny point slowly expand in area with an almost idle curiosity. The normal functions of their minds were blanketed under an avalanche of questions; here, before them, in bewildering array, were the unguarded scientific achievements of a science that so far surpassed their own as to defy comparison. They had run the gamut of emotions in this deep flung chamber of mysteries—their minds recorded their visual impressions, but without reaction now. They were prepared for anything—mute obeisance to powers treading the borderland of the miraculous. And the bright spot of light grew steadily larger.

"Looks like a star," said Conway. "I've seen—"

"You're right!" agreed Blackwell suddenly. "I remember a photographic plate—"

A whisper of sound, sibilant and arresting, cut short Blackwell's words. It was indescribably sinister and malignant; they whirled in silent apprehension, their eyes darting with almost feline quickness around the room. It emanated from nowhere, from everywhere—unintelligible and malevolent.

● "The mirror!" gasped Conway. The spot of light had dissolved from view in a milky radiance that suffused the entire surface. There came a metallic click, and every light in the room save a single beam of eerie scarlet faded from being. Simultaneously there appeared on the screen before them the strangly human contours of a head. But if human in contour it was far from human in detail. It was as if an earthly aviator had donned the complicated paraphernalia incident to high altitudes.

The head was encased in a helmet of the same glowing metal that sheathed the monstrous mechanism in which they stood, the eyes were invisible behind thick panes of a quartz-like appearance sunk into the metal helmet. A tube, slim and flexible, emanated from the metal that swathed the face. Behind it, surely, were mobile lips. The whispering sound filled the darkened room.

"Is that thing speaking?" gasped Blackwell.

"If it is, I don't like it!" replied Conway. "What in Heaven's name are we seeing here—"

"Listen!"

The whispering sounds were more rapid now, more insistent; the head on the screen was jerking as if in unison with the more emphatic tones. Then abruptly there was silence. The head moved to one side, and its place was taken by two others—identical in every detail.

There was a single whispering sound, authoritative and commanding. Then silence. The two heads remained motionless. It was as if they were listening for some expected sound.

It was a strange tableau. Neither Conway nor Blackwell were capable of coherent thought. They were succumbing to a growing fear. Reason could grasp nothing tangible here, no adroitness of logic could cope with the fabulous heads that stared at them in silent immobility.

A moment more and they would have reacted without thought or volition—would have fled the room in silent, nerveless panic. Blackwell had already stepped back when the gargoyle heads vanished and the lights clicked on. Before them, sparkling and serene, was the mirror—again reflecting on its flawless surface the shifting panorama of the colored lights.

Blackwell swore quietly and emphatically. "Now where," he demanded, "did those heads come from?"

"I don't know, and, care less! We'd better get out of here!"

"Right! I seldom have premonitions, but—"

A crash, violent and metallic, filled the room with vibrant sound. The entire structure of the great projectile trembled and shook as if in the grip of a giant's

hand. The floor slid jerkily beneath their feet as if possessed of sudden life.

"The thing's moving," cried Conway. "Hurry, man, we've got to get out of here!"

They fled through the circular door in cringing panic, conscious of pulsating lights, of switches snapping and crackling in auras of bluish lights, of the whirling drone of hidden mechanisms. They raced through the labyrinth of the room they had first entered—goaded to feline agility by the sight of the ponderous door slowly closing before them. They made it by the smallest of margins, a ponderous jerk to the huge structure hurling them cruelly to the jagged rocks that lay beneath the door.

A cry from Conway, instantly stifled, brought Blackwell to his side in shaking haste.

"Hurt, Alex?"

"Afraid so. Help me up, will you?" Blackwell winced at the gasp of pain wrung from his companion as he aided him to his feet.

A rock, ponderous and jagged, crashed from the ceiling to the floor below stinging their unprotected faces and hands with bits of flying splinters.

"Take my arm, Alex! We haven't a split second—" They staggered over the jumbled rock with tragic slowness, Conway's face a mask of drawn whiteness. Death, pinioning and agonizing, missed them by inches. The great projectile was trembling and slithering over the rocks; its ponderous bulk jarring great masses of stones from the walls and ceiling. They gained the rear of it and saw that it was no longer half buried under fallen rock, but had slid from beneath, a good twenty feet or more. The shutter-like arrangement in the stern was wide open now, and a veritable leaping cataract of golden light was pouring from it. It was blinding, awesome, pulsating as if to the intermittent urge of the driving power that was hurling it forth.

CHAPTER VIII
The Light Dims

● Great blocks of stone were slowly moving and shifting with fearful life in that stabbing flood of light. Crashes and snapping roars filled the air with awful sound. The metal monster itself emitted a crazy, shrieking drone—long streaks of reddish light mottling its trembling flanks in a leperous glow.

A sliver of rock struck Blackwell's shoulder, smashed him almost to his knees, filled him with crawling pain. Conway was almost a dead weight now; his eyes were closed, his face curiously white and placid. With an effort that made him dizzy, Blackwell kept his own feet. He dragged his burden toward a wide crevice that had appeared a moment before amongst the tumbled rock. Once he paused, paralyzed by the dread sound of a new terror. Then he staggered on. Water! Its hissing roar came from somewhere behind.

He tottered on with sweat blinded eyes, his shoulder throbbing to a stabbing pain, his lips moving in soundless gasps, his ears tortured by the ceaseless roar of falling rock. Intent upon the partial haven of the crevice he stumbled into the path of the blinding flood of light.

Too late he felt its swirling power. As in a dream he felt himself lifted, hurled through empty air as paper before a blast. Then a numbing crash, a sudden agony—and oblivion.

* * *

After Hunt had closed the revolving door of the sphere upon the two men who had just quit it, he and Lucille watched them wordlessly until they had disappeared amongst the tumbled rocks. Then he grabbed the head receivers, adjusted them, and bent to the transmitter.

"Hello, up there!"

"Yes, sir" The linesman's voice was sharp with excitement. "Why haven't you answered? I've called repeatedly."

Hunt ignored the question. "What are the surface conditions?" he demanded.

"It's been extraordinarily calm, sir. There's a swell beginning to run now, though."

"Will it affect our position any?"

"I don't quite understand, sir."

"I mean, will the *Oliver* drift?" He heard the linesman speaking to someone. Then:

"If the swell increases, it will, sir."

"Listen," said Hunt intently. "You must endeavor to hold this exact position. I repeat, exact. It is of the most deadly importance! You understand?"

"Right, sir! But what—?"

"Tell Captain Effinger at once!" continued Hunt. "That's all!"

Lucille's hand touched his arm. "Tad, if—" Suddenly tears were sparkling in her eyes. He placed his arm comfortingly about her. "You couldn't have held them, my dear. Those men are scientists. Everything is subjugated to—" He paused, groping for words. "You understand? I don't know what all this is about. It seems a little insane to me, but they'll come back. You'll see—" They waited, tight with fear that the sphere might drift from the waterless safety of the lighted area.

They had no eyes now for the eerie beauty of the sunken city around them. They watched the crevice through which the two men had disappeared, hoping that each passing moment would see them reappear.

Hunt closed the gleaming valve to the oxygen tanks, and swung open the heavy door of the sphere.

"Better save what little oxygen is left," he explained.

"Tad, what does all this mean? Where does this air come from?"

"I haven't the remotest idea, my dear," he smiled. "Possibly a phenomenon incident to this strange light. We may know more about it when the others return."

"Tad, listen—"

"What?"

"Listen—!"

A peculiar sound like the distant hum of an airplane was audible to them. "What could that be?" asked Lucille.

"Sounds like a dynamo to me. I'd be willing to swear that it's mechanical, at any rate."

"Tad, I'm afraid! All this seems impossible—"

● "That light looks brighter to me," said Hunt abruptly.

"Listen!" The humming sound had become more pronounced now and a sinister, grating noise was heard.

"The sphere is moving," cried Lucille in sudden fright.

"Oh, Tad—!" A crash, thunderous and violent, sounded from the heap of rocks in which the two men had disappeared.

"Something's wrong over there," shouted Hunt above the sudden tumult. His voice was drowned in a shrieking drone of sound that leaped upon them with the suddenness of an explosion.

In the midst of their grim expectancy, they saw a small boulder detach itself from the larger heap and slither jerkily toward them.

The sphere was swaying ponderously with a pendulous motion when Hunt grasped Lucille's hand, looked at her wordlessly, and scrambled from the sphere.

Instantly he was hurled to the soft clay of the bottom as if struck in mid-air by a giant and invisible hand. He lay a moment, unhurt, but was surprised into a crouching, motionless attitude as he felt the flowing power of the light streaming around him. Then he was on his feet, bent almost double, fighting forward step by step as would a man treading the rough bottom of a swift river.

He fought his way to the swaying sphere, and with a sudden effort managed to close the door upon Lucille. She cried out to him as he did so, but in the appalling roar he could not hear her. He swung the heavy door into place and crawled away.

The light was now a flashing brilliancy that struck against him with cruel force. Once he stumbled and was rolled along the bottom for fifty feet before his wildly clawing hands could grasp a jutting rock with which to stop himself. He was almost spent; his eyes ached intolerably under the onslaught of the pushing rays, his hands were numb and torn by the jagged stones. He had dragged himself blindly to the first of the larger rocks when the unmistakable cry of a human voice came from somewhere ahead.

That one sound, human and familiar in the midst of a thousand tumultous roarings, brought him new strength as it always does to all those who seek their kind in alien places.

With gasping effort he pulled himself over and around the rocks, their slimy surfaces feeling like the cold armor of serpents beneath his hands. He found a crevice, forced himself blindly and with all his strength into its narrow confines, and strained forward inch by breathless inch.

Twice he stopped in cold terror as he felt the solid walls on either side tremble and sway. He dared not envision what would happen should they close upon him only for an instant. He felt now all the courage of despair. He threw himself forward against the invisible torrent that sought to hurl him back, he clawed wildly at the riven rock on either side for purchase, he strained tired muscles almost to the breaking point.

The din was terrific. Ear shattering roars and shrieks filled the air with trembling sound. The ground beneath his feet rocked to the shock of unseen impacts, and a maddening scream as of a giant buzz-saw gone wild threatened to force his hands to his ears in a futile effort to shut out the insane tumult.

And always there was the numbing fear that something would happen to Lucille. The incongruous memory of the laughter-filled tea room at Loimer's returned to him. He remembered with a cold chill in his heart the loveliness of her eyes as she looked at him across the little table. If anything should happen to her—

He stumbled over something of a yielding softness that brought him almost to his knees. He regained his balance with an effort and looked down with light-blinded eyes.

At his feet, wedged grotesquely in the crevice, lay Blackwell—his bearded face white as paper but for the scarlet stain that welled from a ragged wound scrawled across his high forehead. Just beyond lay Conway.

● Hunt felt a sudden fear as he glanced at Conway.

He stood there looking at the sprawled figure of the scientist, his body bent forward, his torn hands bracing himself against the streaming light. Then something shot into his face with the stinging force of buck-shot.

He jerked his head aside in surprise and pain. He did not have to feel his smarting face to determine the nature of the thing that had struck him. It was water! A fine mist driven before the light with almost dangerous speed.

He snapped into action abruptly. Water! That fine spray might well prove to be the prelude to a cataract!

He braced himself between the trembling walls and hauled at Blackwell's limp body where it had wedged in the narrow crevice. There was no difficulty in dragging the wounded man back through the narrow passage—the danger lay in giving away too readily before the driving urge of the ray. Once a splinter of rock drove by them and struck a jutting portion of the wall with tremendous force.

Then they were free of the crevice, and across the brilliantly lit interval of red clay he saw the swaying sphere. He gained its ponderous bulk with ease, but was confronted with a new problem in holding Blackwell against the forces that were acting upon them. The sphere was swinging in a dangerous arc, and he dared not come too closely with his burden.

He thought of Conway lying back in the crevice, of the hurtling rock, and the menace of the flying spray. He *must* get to him before the man was buried beneath those trembling walls.

He sprawled Blackwell flat on his back, extended the unconscious man's arms and legs to their fullest extent, and turned his attention to the sphere. It was impossible to check its ponderous swing. He felt a quick anger of helplessness. Lucille could not open the heavy door unaided, nor could he have lifted Blackwell through the swaying opening if she had.

Suddenly, he turned and started back for Conway. It was a nightmare journey. The air was full of driving water now—it struck his unprotected face and hands with the violence of clenched fists. How he got to Conway he never knew. He fought forward with a numb, blind intentness; all thoughts and feelings in almost complete abeyance—everything subjugated to the one primary purpose. He found him with sobbing relief, brought him out of the crevice, and started across the open sea-bottom.

Then he glanced up and received the most awful shock of his life. The sphere was gone!

He stood a moment as if stricken by the enormity of the catastrophe that had overtaken them. Behind him there was a sudden roar, a thunderous pounding as of a giant hammer beating upon an anvil of iron. Then silence, absolute and complete, with the abruptness of a

closing door.

He scarcely realized that the awful din was stilled, that the air was rapidly filling with tiny globules of water, that the golden flood of light was dimming. The phantom flood that was pushing against him was slowly subsiding, and not until his unconscious leaning against it had thrown him from his balance did he realize that the light was almost gone.

He glanced down at Conway with vacant eyes. The scientist's white features were composed and placid. Hunt hoped that he was dead. He glanced across at Blackwell's sprawled figure. He lay in a little hollow and Hunt saw that small pools of water had gathered around him. The air was thick with mist and he felt a thickening in his throat.

● Suddenly he began to cough. The strangling vapor seemed to choke him with liquid fingers. He checked it only after he had held his handkerchief to his mouth and nose. It became quickly wet and he wrung it out at intervals—cursing himself for a fool the while.

He sat down in the sticky clay holding his handkerchief to his face. He felt as if all the strength in his body had been drained away. Suddenly, he sat bolt upright. Lucille! Was she all right? Had she made the surface unharmed? He must not think of that!

It was then that he saw the sphere.

To Lucille, directing the descent through the transmitter beside the port, it was a smile on a doomed man's face that warmed her woman's heart to see.

But he was not smiling now. He had jumped up in startled incredulity, then swung back to the recumbent Conway who lay at his feet. By the time she had halted the great sphere, motionless now, a few feet from the bottom, Hunt had already started the heavy door whirling from its place.

After he had it open, and for many minutes thereafter, Lucille had nothing to say. Trembling and white she made her father and Blackwell as comfortable as she could after Hunt had carried them to the opening in the sphere.

The light was nearly gone now. Thick streamers of water curled about them as the eerie force that had vanquished it slowly died. The interior of the sphere was filled almost to the doorway when Hunt clambered in.

He was coughing again; his eyes starting from the convulsive strain put upon him by the strangling fluid. He did not know it, but a moment more and he would have drowned.

With his last strength he whirled the heavy door into position, smiled blindly in the direction of Lucille, and said: "Hello, honey! Let's go home—"

Then he fainted.

It was one of those days that only the Pacific can produce; a cool shower of sunshine poured upon a sea of tranquil beauty.

Four people sat in comfortable deck-chairs on the broad fantail of the *Oliver*. A heavy, bearded man with a swath of gleaming bandage encircling his high forehead, sipped reminiscently from his tall glass.

"As I was saying," he observed with genial emphasis, "I've absolutely no doubt but what that cussed machine crashed into that room from the surface."

"You mean, Blackwell, that the affair traversed almost six miles of solid water, and yet struck with sufficient power to penetrate those rocks?"

"Undoubtedly!" Blackwell narrowed his eyes thoughtfully. "No telling the enormous speed it was traveling when it hit the Pacific! I assume it arrived from some solar planet. I wonder which of them it came from—What do you think, Hunt?"

"I'm inclined to agree with you. I didn't see the machine, but from your description it would be of the right design and—Oh, everything points to that origin."

"And those heads!" supplemented Lucille. "Surely they were from some other world."

"I've seen a lot of things," said Conway quietly, "but those heads had me on the run. The whole affair astounds me, yet—" He twisted uneasily in his chair A bulge beneath his jacket spoke eloquently of the bandages that hid his hurts. "—yet, why should it be so strange, after all? In my own laboratory there are things that would astound a layman, yet I regard them as commonplace enough. What we have seen may well be as common as our shoes to the beings who invented it! No, not so strange after all—. Well, whoever they are, and wherever they came from, they're jolly well welcome to their space ship!"

"Do you suppose," speculated Lucille, "that Captain Effinger actually believes that you were walking on the bottom?"

"I very much doubt it," laughed Hunt. "I hardly believe it myself! By the way, my dear, we owe you a tremendous debt. By raising the sphere while I was after your father, you stopped its swinging—" He smiled ruefully. "What a start I had—"

A sailor appeared and addressed Doctor Conway:

"We've contacted the shore stations, sir. They want to know if there was anything of interest in the Planet Deep descent."

For a moment Conway was silent. What proof had he that they had been in wonderland, that a vast city lay beneath the tossing Pacific, that a strange craft from some distant planet lay trapped in a rock-bound cavern of its own making? "Yet," he mused aloud, "there's nothing strange in all that! Not actually—"

"Sir?" asked the sailor.

"Oh—Oh, yes. To be sure. No, my boy, there was nothing very strange in what we saw. There are many things that *seem* strange at first sight, but—No, tell them that there was nothing of interest."

"Very good, sir!" The man hastened away, and Conway turned to the others. "How could we prove it?" he smiled. "I'd hate the job!"

"You're right, sir," agreed Hunt. Suddenly he smiled. "Had enough vacation, sir?"

"I suspect I've had enough, Tad!" laughed the other. "I'm going back to safe and sane experimentation. We'll make egg-beaters and things out of the new metal and let others find out all the interesting things on the ocean floor!"

"If any of you think I'm ever going to allow this sort of thing to happen again," began Lucille, "you're most sadly mistaken! Why—"

Hunt silenced her in the most effective and pleasant way he could think of.

Conway looked at the bandaged Blackwell. They winked largely, and settled back for a sound nap.

THE END

(Illustration by Paul)

The Horror began to sway. It was as though a great molten ball were suspended by a chain, and swinging slowly in short arcs . . .

THE COSMIC HORROR

By RICHARD F. SEARIGHT

● Lest you think that the science contained in this story is entirely imaginary, let us point out that one of the most mysterious electrical phenomenon of which practically nothing is known is ball lightning. Here we have a phenomenon where electricity, for reasons not clearly understood, forms itself into a six to eight inch fiery globe which sometimes moves slowly, other times with terrific speed.

The ball may come in through an open window and move around leisurely. If it comes in contact with anything alive, like a human being or animal, it often kills them on the spot, leaving a strong sulphur odor behind. While, of course, ball lightning has no intelligence, and is, therefore, not "alive" in that sense, it still shows how little we know about electrical forces.

The author of this tale has no doubt used electrical phenomena of this sort as the basis of this story, and he has woven an exceedingly moving pen-picture of what might happen when some electrical force becomes endowed with intelligence.

● Now that the reign of terror induced by the Cosmic Horror (as the phenomenon has been repeatedly termed by the press) in Clinton County and the surrounding territory has come to an end, countless inquiries have poured in on me. A scientific monograph has already been published relating such facts as were obtained through the connection of Professor Elton and myself with the activities of the Horror, but these findings were necessarily too inadequate to satisfy the many speculations regarding the origin and real nature of the visitant.

The worldwide interest in the matter has decided me to set down, simply and concisely, the story of the actual happenings, as seen by a layman who was unfortunate enough to be involved in the affair.

The whole frightful train of events began towards the close of my annual summer vacation. For years I have been accustomed to leave my legal practice in the city and spend this period with Professor Wayne Elton on his small country estate near Clinton. The professor has been blamed, indeed censured bitterly by some of his colleagues, for his initial part in the matter, yet I think all will agree that he has made full reparation for the damage wrought by his curiosity.

It had been one of those breathlessly hot, muggy evenings, with a thunder storm in the offing. Even Elton, a man as impervious to heat as anyone I have ever known, was content, for the moment, to relax the bundle of nerves and muscles which composed his lean frame, and devote himself to a cigar.

Finally the storm broke, and rain fell in torrents. After its passing we resumed our porch seats, drinking in the refreshing breeze which had sprung up and revelling in the relief from the cloying heat. I thought of the approaching end to my visit, and my eyes roved regretfully over the dim panorama of rolling countryside stretching away under the clean-washed stars.

Elton's incisive voice broke in on my reverie.

"Look, Creighton! A meteor!"

My gaze followed his pointing finger.

"Looks as though it would land close to us," I commented lazily. Together we watched the fiery mass rushing earthward. It was close, indeed; so close we could almost feel the rush of air disturbed by its swift descent.

"Unless I'm all wrong, it fell in the field just across the highway from us," said Elton after a moment, running a restless hand through his greying hair. "No detonation, so it must have landed in one piece. This is luck! I've always wanted a meteorite of my own to analyze.

"It ought to be easy enough to find," he continued. "No moon tonight, but I think I know just about where it struck. I'll rout out old Jenkins to help us look. Come along."

With his usual impetuousness he was already on his way to the back of the big house. I followed at the best pace my waistline would permit, reflecting that the years since we had been room mates at the university had made little inroad on his dynamic energy.

Our search did not meet with success quite as soon as Elton appeared to expect, but an hour later found the three of us grouped about the meteorite. It was a fair-sized one, a foot in diameter, and recognizable only by the black fused crust, thin and glossy, which covered it. It lay nearly buried in the loam of the field where it had fallen in a natural hollow of the ground, causing it to escape detection for a time.

Jenkins, the aging gardener and utility man of the estate, set down his lantern.

"There's a hoist in the garage that we can use," he told us. "I'll bring it over on the little truck, if you want."

"All right," approved the scientist, "do that. We'll dig the stone out and take it back on the truck, then."

The meteorite—a remarkably symmetrical one—was soon in place in the back of the pick-up truck. It was strangely lacking in weight; in fact I believe we could have carried it to the house between us. This phenomenon whetted Elton's already keen curiosity and he was more than excited. Another factor that increased his interest in the acquisition was the faintly repellent magnetic quality which emanated from it. It was something altogether too palpable to be dismissed as a figment of the imagination, yet hardly strong enough to attempt to identify or even describe.

"Some new element," Elton informed me positively. "Some sort of radioactive substance. Never felt anything like it before. This is a real find, old man. Just wait, and you'll see history in the making when I analyze it."

Presently the thing reposed on the floor of the big, brightly-lit laboratory. Elton took a few photographs from different angles, then set the camera away with an oddly puzzled look on his face.

"Have you noticed this, Creighton?" he inquired, pointing to a section of the meteorite.

● I had observed the peculiarity of which he spoke, but my lack of familiarity with things scientific had prevented any comment. Briefly, it was this: while the meteorite seemed to be composed of solid rock, now that the black crust had been scraped away, we could see, inset on one side, a slab of what looked like some unfamiliar greenish metal. Its margins were so clearly defined as to give an impression of artificiality to its presence.

"You think that's the new element you spoke of?" I asked.

"Maybe. Anyway, it's unlike any metal I know of. But, if you've noticed, you can touch the meteorite anywhere and get that sensation. Whatever is giving it off may be part of the substance of the stone itself. However, that's something I'll have to determine by analysis. Help me put it under the rock grinder, Jenkins. I want some dust to work with."

I glanced half humorously at my wrist watch. It was nearly midnight but my friend was in no mood to postpone his investigations. With Jenkins' help he clamped the stone in position on the low platform of the big rock grinder, a relic of his transitory interest in geology which had stood idle for years in a corner of the room.

He was promptly fussing with the grinder's long-unused electrical connections. He hooked them to a motor which the laboratory boasted and, by some unfortunate chance, succeeded in obtaining a complete circuit at once. The motor began to hum and the high-speed rotating grinding disc started its flashing revolutions. Elton threw a lever and the disc began a slow descent. We stood back to escape the flying particles which would result from its contact with the meteorite.

It reached the stone, and a grinding noise, like the sound of a dentist's drill tremendously amplified, rose above the drone of the motor. The surface of the mass began to level off beneath the friction.

Then I stared in amazement at an unexpected development. The grinding disc had broken through a cortex —the meteorite was hollow! Elton leaped to the switch and shut off the power while I stepped over to inspect the hole. The opening exposed was small but I could see that the interior was much larger and filled with a brilliant, pulsating light. A wave of intense heat swept up into my face and I backed away, astonished and perplexed. Then a strange thing happened.

From the small, jagged opening issued a radiant vapor of some luminous substance which seemed strangely cohesive in its nature although it rose like a gas. It billowed up from the hole and expanded into a dense fiery ball, like a sphere of molten metal, perhaps three feet across and shimmering with unearthly lustre. It floated in the air at the height of a man's head, a coruscating brilliant thing, palpitating with an anomalous vibrant life. It radiated heat and we felt again the queer magnetic current, but now infinitely stronger.

I edged further away, thoroughly bewildered and frightened, while Elton and Jenkins backed against the far wall, their fascinated gaze riveted on the weird phenomenon. Then it happened, with the speed of light. One moment the fiery mass was hovering lightly before the grinder; the next it had streaked across the intervening space like a scintillating bolt of lightning and wrapped the gardener round in lustrous, amorphous folds.

Elton shouted something unintelligible, then raced across the room to the desk where he kept his pistol. I stood rooted in my tracks, stunned with surprise and horror. Jenkins was enveloped in a molten, glowing garment which covered him from head to foot. He swayed, then crashed to the floor. In a few seconds, is seemed, the fiery substance withdrew its folds and rose again into the air, resuming its former spherical shape. It swung lightly above the motionless body, pulsating rapidly, while a deepening reddish tinge blended with the original white-hot hue.

Then Elton was at my side, pumping shot after shot into it from his automatic. But the thing continued to hover over its victim, swaying slightly after each report, yet apparently unharmed by the impacts of the heavy bullets which crashed on into the wall behind it. The pistol became silent but the menacing swinging motion of the unholy creature continued. A warning struck into my dazed brain—I have seen a tiger lash its tail rhythmically with just that effect before its spring. I grasped Elton's arm and dragged him back in desperate haste.

"Get away quick," I gasped, as I urged him back. "It's going to attack again!"

Only one way of retreat lay open. The thing's position cut off escape through the doors, and we fled towards the small storeroom opening off the far end of the laboratory. Only a second or two could have elapsed in our wild dash to this refuge, but as we crashed through its door, I saw, over my shoulder, the fiery globe streaking towards us with incredible speed. We slammed the door and I drove home the bolt. At the same instant a thud sounded against the outside and a lurid, glowing curtain spread itself over the glass which occupied the upper panel of the door. Soul shaking sucking sounds came through the thin wood, and a wave of heat crept into the little room.

Saved by Water!

● I realized at once that we were trapped. The storeroom was little more than a cubby-hole used for the storing of bulky chemicals and odds and ends of discarded equipment from the laboratory. There was no window, no means of egress but the door, and if the weird menace could gain entrance we would be helpless to escape it. I crouched against the far wall, my eyes glued in a helpless, fascinated stare on the crimson threat which blotted out our view of the laboratory.

We were safe for the moment, but glass and wood seemed poor barriers against such an abnormal creation. For all we knew it might possess other powers than those it had displayed—such as penetrating through certain kinds of solids; or perhaps the terrific heat of its presence would melt the glass. Already the temperature of the cramped space was rising rapidly and we were drenched with perspiration.

Then another source of danger appeared. In the light of the unshaded bulb which Elton had snapped on, I saw a thin wisp of smoke curling into the storeroom from between the door and its jamb. Apparently the heat pressed against the outside was igniting the wood.

Elton was poking about in the miscellaneous junk piled around the room's sides. Now he stooped and snaked out a length of old rubber hose. He measured it with his eye and nodded.

"I've got an idea," he announced. "I— "

"Look at that door," I broke in, "ideas won't help in another minute—the place will be on fire."

He cast a startled glance over his shoulder as a puff of white smoke burst in upon us, followed by the crackling of flames from without as the fire gained a hold. With desperate speed he fitted one end of the hose over the mouth of the water faucet above the mop sink at the side of the room. Dimly divining his intention, I held it in place. He opened the transom over the door ever so slightly, and thrust the other end of the tubing far enough through the crack to point downwards on the outside.

"I don't know if this will do any good, Creighton," he muttered as he worked; "we can only try." Then: "Turn the water on full force—quick!"

The glass was cracking in the heat as I turned the handle. A stream of icy water gushed down and deluged the Horror which clung outside. Suddenly the glass was clear and through the cascading water I saw the creature, now a shapeless, tentacled mass, swirling and twisting violently about the laboratory, a cloud of steam surrounding it.

The water continued to course down the outside of the door, and clouds of smoke arose as the fire was extinguished. A good part of the fumes worked their way into the storeroom and set us coughing and choking, but the discomfort passed unnoticed. We watched anxiously as the ruddy monster pursued its wild gyrations outside; then felt all the relief of death sentences reprieved as it suddenly flashed through one of the open windows and away into the night, as though sucked up by some cosmic draft.

Thankfully we pulled back the door and stumbled from the suffocating place into the cleaner air of the laboratory where the breeze from the open windows was rapidly dissipating the smoke. A glance at the burned and blackened woodwork, and we made our way to where Jenkins had fallen.

He lay flat on his back, a ghastly sight. Through the charred shreds of clothing adhering to the cooked flesh I could see that his entire body was scorched and blackened. The balls of his eyes were seared by the heat of the fiery shroud which had enveloped him, and his whole frame was strangely shriveled and shrunken. He must have died instantly, yet a more frightful death could scarcely be imagined.

Elton stared at the shocking remains of his old employee, with mounting horror in his eyes. I felt very near collapse as I regarded the fate we had so narrowly escaped. At length:

"Every drop of blood seems to have been drained from his body," muttered the scientist unbelievingly.

I felt a nauseated understanding of the deepening crimson hue which had marked the creature as it rose from its victim.

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● An hour later, Sheriff Hugh Walters stood looking down at the body of Jenkins, and the color slowly ebbed beneath his rich mahogany tan. The puzzled scepticism which I had seen in his eyes, as he listened in the library to the outline of the evening's happenings, had vanished. He turned abruptly away.

"This is bad business, professor," he stated tritely. "I've seen some awful sights since I've been on this job, but nothing like this."

He passed through the laboratory to the storeroom, and looked inside, his keen, casual-seeming glance taking in each detail.

"You're sure this thing is alive?" he asked as we started back to the library. "Couldn't it be some sort of electrical power gone wrong?"

Elton shook his head emphatically. "No such luck. I thought of something of the sort, at first, but every move it made was proof, not only of life, but of *intelligence*. No, we've got a mighty dangerous creature to combat; a devilish thing which has no right to existence on this earth."

Walters settled his long, rangy frame in one of the library chairs and began to chew on a fresh cigar.

"You think, then," he began, "that it's apt to attack others?"

Elton turned in his restless pacing. "I'm almost sure of it. I'll admit there's a possibility that conditions of temperature and atmosphere here may prove unsuitable for it. It may try to return to its original habitat, or it may die, but I don't think we can depend on it. We should take steps at once to protect people."

"The fact that we found it *sealed* in the meteorite," he continued, "is most significant. I found that the metal slab which was set into the stone *was put there to seal shut an opening!* It was fused with the rock at the edges, inside and out. I believe this means that some form of intelligence, possibly on some distant planet, found the creature a menace, imprisoned it and set it adrift in space; probably because they lacked the means of destroying it outright. And it looks bad for our chances of killing it, if a science capable of capturing the thing and projecting it into space was still unable to do so."

He resumed his interminable pacing about the room while the sheriff and I digested this thought.

"What's your theory about its physical nature?" I asked presently.

He pondered for a moment. "I think it's probably a combination of pure force, perhaps electrical in character, and attenuated substance. A creature absolutely alien to life as we know it. The substance is there, because it absorbed the blood from Jenkins' body"—the sheriff made a wry face—"but it wasn't dense enough to offer resistance to my bullets. There's a theory out now that all life originally evolved from heat—probably as good a guess as any. Perhaps this thing was spawned by some world in the outer reaches of space—or closer, for that matter. But speculation won't help us any on that point."

"Funny sort of creature," commented Walters, as the other paused. "If your gun wouldn't hurt it, how are we going to go about killing it if it starts to make trouble?"

"That's just the point I'm trying to bring out," returned my friend with a touch of irritation. "It's going to be a problem, but substance can be destroyed—any substance—if the right means is used. Water made it retreat, but I doubt if it would actually destroy it. High powered projectiles . . . explosives . . . Fire might do it if the heat could be made sufficiently intense; or a high

voltage charge of electricity. But those are all pretty hard to bring into action against anything that moves so fast, and none of them are certain because we know so little of its nature."

Walters looked discouraged. A little more talk and he rose to his feet. "I'll be out again in the morning," he told us. "There's nothing I can do tonight. We'll talk it over again then, and decide on some plan if it seems necessary."

The Chase Begins

● The morning was far advanced when I awoke from the heavy slumber, shot with gruesome dreams, into which I had sunk on retiring. I hurried down to the dining room and saw with relief that Elton had just taken his seat. He was sipping his coffee as he unfolded the late edition of the morning paper. I dropped down across from him and began to attack such portions of the meal as had appeared.

His startled gasp interrupted me. I looked up to see him staring at the front page of the paper, his face quite white. In almost a single movement I was around the table and peering over his shoulder at the item designated by his finger.

Obviously a last minute insert, it read:

"An unidentified air mail pilot crashed early this morning in a field three miles west of Clinton. The plane and body were found shortly after daylight by searchers who had heard the crash. The appearance of the body will provide a puzzle for examining physicians. While almost every inch of the skin had been badly burned, no traces of fire was found in the plane, which, with the mail, was intact, aside from damage caused by the fall. The sheriff's department is conducting an investigation and it is intimated that the cooperation of Federal operatives is expected."

A brief, unadorned story, plainly shorn of detail to make the edition, but it gripped my mind as a superlative horror. My thoughts reverted to the murderous space traveler. What malignant, rapacious entity from the boundless depths of space had we loosed on the world? Like the genie in the fable it had been bottled up and helpless; in all innocence we had brought about its release, and now it was beginning the nightmare career of preying on humanity which Elton had feared.

I stumbled back to my seat. My friend continued to stare at the article, his lips pressed into a thin line. At length he folded the paper carefully and laid it aside, then turned to me.

"Just what I was afraid of, Creighton. The thing has struck again. Lord only knows how many victims it will claim before we can destroy it—and I'm responsible for it all. . . ."

A haunted, remorseful look had come into his eyes.

"You're not to blame," I told him quickly. "No one could have dreamed that such a thing was possible, and you acted in good faith when you brought the meteorite here and opened it. You're not at fault, at least not intentionally."

"No, of course not," he returned quickly, suddenly recovering his usual vigorous outlook. "But I did the damage and I'll undo it. Somehow, I'm going to destroy that creature if it's the last thing I ever do."

"And I'll help you all I can," I assured him warmly. "I'll stay on here till it's killed. Between us we may be able to trap it. At least we know more about it than anyone else."

Similar reports began to fill the press, and terrible days followed. Corpses were found in isolated places each morning, always in the same condition: burned, blackened, shriveled; every drop of blood extracted from their bodies. Automobiles were discovered wrecked and twisted along the highways, no trace of fire about them, unless perhaps a slight charring of the upholstery, but with their drivers done to death in the same frightful manner. Always the Horror struck at night; always the victims were alone, and there were few who laid eyes on it and lived to tell of what they saw.

Warnings were issued by the state government. Everyone, especially those residing beyond the confines of towns and cities, was urged to remain indoors at night. Strong parties of state police, sheriffs' deputies and volunteers scoured the territory in which the deaths took place, patrolling the highways at night and searching for a possible hiding place of the creature by day. The Horror seemed to confine its depredations to an area of approximately a hundred square miles about Professor Elton's estate, and this gave hope, at first, that its lair might be located without much difficulty. But, as day followed day without progress, and the monster continued to prey unseen and unrestrained upon its victims, we began to despair.

That was a period of nightmare existence. All the everyday pursuits, all the commonplace routine of life, were forgotten in the fight to check the ravages of the visitant from the voids of space. My readers will recall that the press of the world was filled with lurid accounts of the strange form of life which was devouring the blood of unfortunate men. They called it the Cosmic Horror, and printed long speculations and scientific comments regarding its origin and nature.

Professor Elton became the target for acrimonious criticism from certain of his colleagues for his unconventional action in appropriating the meteorite for his own use, it being suggested that had the stone been mounted in some museum, as would ordinarily have been its fate, the Horror might never have escaped. All this was beside the point, but it preyed on Elton's mind and he devoted himself grimly to plans to undo the damage.

● We spent the days conferring with various officials, trying to devise action to end the reign of terror which had developed in the region. The nights we passed usually with Sheriff Walters, cruising about the district in a cabin plane borrowed from the county airport. Walters had thrown himself unreservedly into the fight, and had collected and carried in the plane every modern means of destruction which had been suggested by science to combat the creature.

In addition to a machine gun, synchronized to pour its deadly stream of lead between the whirling propeller blades, we carried a supply of hand grenades, two vicious sub-machine guns shooting explosive bullets, and sticks of special dynamite with detonator caps attached. Finally, there was a pressure tank of water with a hose, to be used in defense if that should prove necessary.

But, though we roved the heavens night after night, while automobile loads of officers patrolled the roads below, the creature eluded us. Its continued presence in the locality was evidenced only by fresh victim or victims found each morning. It seemed to possess an uncanny faculty for distinguishing between its helpless prey and the hunters—some of whom traveled alone as decoys—

and of keeping hidden from sight except when actually striking.

The Governor of the State was on the verge of declaring martial law in the district when the tenth night passed with no casualty reported on the following day. The populace throughout the area was thoroughly frightened, indeed panic-stricken, and was heeding the repeated warnings of the authorities. Sheriff Walters was jubilant when Elton and I met him that evening at the airport, preparatory to taking off for the night's patrol.

"It means the thing didn't get any food last night," he explained, as he made an unusually careful, last minute inspection of his arsenal inside the plane. "It's probably good and hungry by now and maybe it'll get desperate and attack us. If it does—well, we'll find out what all this stuff here will do to it." He grinned hopefully as he took his place beside Elton and myself in the rear section of the ship's cabin. Walters was brave enough. He welcomed the prospect of coming to grips with the creature; but then he had never seen it—in action.

Besides the three of us in the rear, the plane carried its pilot and a deputy, also a flier, who occupied the other front seat. Spread before us in the back section were the weapons we hoped to use.

We took off smoothly as the late dusk deepened into night and the lights of Clinton began to twinkle out. The breathless heat of the evening was relieved by a fresh breeze as we spiraled up to a thousand feet, then levelled off for the long leisurely cruise. A higher altitude, Walters felt, would put us at too great a disadvantage if we were to surprise the creature in the act of attacking a person on the ground.

Hour after hour slipped by while we maintained the routine vigil. It had resolved itself into a monotonous, wearisome task of late, but this night I had an uneasy foreboding that action was coming at last. As the sheriff had said, it seemed logical that the creature might adopt bolder tactics.

The full moon rose, flooding the landscape below with a far-flung silver glory. At length it passed behind a bank of clouds and the chill of approaching dawn crept into the air. I was glancing at my watch when Elton suddenly gripped my arm.

"Off to the left there—about the same height we are! See it?"

I did; a gleaming point of light in the distance, larger than a star, and growing rapidly. It bore down on us with terrific speed, looming large and menacing in seconds.

"Quick, boys!" ordered Walters. "Up with those windows! Close them all tight." As he spoke, he lifted one of the sub-machine guns while Elton took the other. On the far side I followed the example of the men in front, sliding up my glass so that now the only avenue open to attack was the window beside the sheriff.

Another low-voiced command, and the pilot throttled the ship down to even slower speed. Walters was giving the creature every encouragement; but I think, too, that he had some idea of slower speed rendering our offense more effective.

Then, like a streaking ball of fire, the Horror was upon us, swooping out of the dark straight for the open window.

The two machine guns roared side by side across the window ledge, pouring a steady stream of bullets at the onrushing creature. Abruptly it checked its charge and began to swing along even with the plane, behind the end of the wing and within twenty feet or so of the window. There was no missing the glittering target. The high explosive projectiles tore through and through its tenuous form, meeting enough resistance from it to explode in a cracking roar of sound; but the thing continued to maintain its position, floating along at the same distance from the ship.

Walters flung his gun aside. "No use! Bullets won't hurt the damn thing! Give me the grenades."

The Thing Attacks!

● I passed him the opened box of percussion hand grenades. They, too, met sufficient resistance to make them detonate, and he hurled them, one after the other. The margin of safety was slight—had the target been closer to ourselves or to the wing tip we would not have dared to use them. The night was filled with crashing detonations, and flaming explosions blended with the sheen of the creature and wiped it from our sight for long seconds. Walters concluded his onslaught with the special, straight-nitroglycerine dynamite, and the plane rocked as the rending concussions blasted the air.

But the creature still swept along beside us when he stopped. It was weaving about, stretching out loathsome little feelers of light as though to learn the nature of the noise and flashes. Apparently the terriffic disintegrating powers of the explosives had not affected it in the slightest.

"Good Lord! It's indestructible!" exclaimed Elton harshly. And indeed it seemed that modern science lacked the means to end this life from the voids of space. The most powerful short range weapons at our command had failed against it.

And now, seeming to recover from its surprise at the strange reception, or perhaps sensing that no more entertainment was to be offered, it returned to its original purpose of attack. Slowly it drew towards the window, closer and closer. Walters awoke to the danger. He turned up the glass and shouted to the pilot: "Give her all you can, Jack! We've got to get away."

The man opened his throttle wide. The heavy ship gathered speed and vibrated in every part as it roared through the darkness. For a moment the gleaming menace dropped behind. Then, with incredible swiftness, it was abreast of us again and, curving in under the wing, had landed with a heavy jar against the pilot's window, where it spread and covered the glass, a molten-hued, pulsating amorphity. The flier gave one frightened look, then turned his head away, wide-eyed fear stamped on his face.

The Horror maintained its hold on the glass with ease, and now, in the light from the cabin, I saw the means. Countless little tentacles projected from the main body, pressing against the transparent surface to somehow create the necessary suction. There was something infinitely repulsive in the rapacious, alien intelligence displayed by the creature, and I shuddered as I watched.

Elton was working with deft haste at the attachments of the water-filled pressure tank—something we had never thought to use. He dare not open the window against which the creature had spread itself. After having seen it pour through the small hole in the meteorite

like a gas, we knew this was too desperate an expedient. Instead, he thrust himself in beside the pilot, opening the small front window slightly from the top. A veritable gale from the propeller swept into the cabin. Elton slipped the nozzle of the hose through the opening and directed it around the corner, pointing down the side of the plane. At his signal I turned the valve and a rush of water foamed along the ship's side and back into the night.

But the Horror continued to cling in spite of it. Perhaps the water was too diffused, coming in too fine a spray due to the ship's motion, to affect it; perhaps the thing itself was too hungry to care about discomfort. At any rate, the small tank had emptied almost before we realized it, and Elton closed the glass, his face a study in puzzled desperation.

The tentacles fascinated me. The creature covered the entire window, its flattened body overlapping onto the structure of the ship. I noticed now that the tentacles clinging to the glass were stretching and contracting, stretching and contracting. . . . Suddenly, in a flash of understanding, I knew what the movement meant: the creature was exerting a vicious effort of suction against the *glass*, at the same time holding its position by maintaining a grip on the plane's frame!

Even as comprehension flooded my mind, its purpose was achieved. A tinkle of broken glass sounded above the bellow of the motor and a jagged piece of window came away in the grip of the tentacles.

Instantly the creature was flowing through the opening. The pilot, his face contorted with terror, half rose to fling himself back, but swift as thought the Horror struck. The man stood for a moment, wrapped in a sheet of living, vibrant flame, then collapsed to lie motionless across his seat. The evil, magnetic aura filled the ship, palpable as an electric current, and heat from its presence beat upon us.

Elton jerked an automatic from his pocket and sent a stream of lead into the recumbent form. Whether he was making a final, close-range attack on the creature, or whether his object was to give a quick and painless death to its victim, I never asked. The body jerked spasmodically under the impact of the steel-jacketed bullets, but I have always liked to believe that men died at the first touch of that scintillating doom.

● As the bark of the pistol ceased, the frightful repast was finished. Slowly the Horror flowed up from its prey and resumed its normal spherical shape, while the remains of the pilot slumped, blackened and lifeless, across the leather seat. The creature hovered lightly in the narrow space, palpitating rapidly, while the revolting crimson glow spread through it. The plane rushed unguided through the darkness, held to its course by the automatic stabilizing power of its design.

The deputy had crawled back and crouched at my feet, his face a mask of fright. We stared in horrid fascination at the evilly glowing sphere in which the shades of crimson played and melted, absorbing and obliterating the hungry molten hue. My eyes wavered for a moment and I noted with an odd, subconscious detachment, that, in this moment of supreme stress, the sheriff's jaws still clamped mechanically on his dead cigar, though his face was ashy beneath its tan.

If the thing chose to attack, nothing could save us, and the wish rose in me for a clean death, if I must die. My gaze still riveted on the balefully shimmering monster, I leaned toward the dynamite, resolved to blow the ship and all its cargo of human life to eternity before submitting to that foul embrace.

But, as my hand trembled on the brink of destruction, reprieve came. Slowly the creature swirled to the window and slipped through the jagged opening like a lambent, gleaming serpent. Outside it reformed and shot away, downward and on a tangent to our course. In half a minute it had disappeared as though passing behind some obstruction.

The moon's rays burst suddenly through the scudding clouds, lighting up the landscape below. The sheriff brushed a hand across his eyes and the dazed look began to die out of them. He glanced around, then:

"Bob!" he called sharply. "Bob! Get up and take those controls."

The brusk tone penetrated the cloud of fright which numbed the deputy's mind. His face became more composed as he crawled over to his seat, carefully avoiding contact with the body of the flier, and grasped the control stick.

During the past few moments my gaze had rested on the silvered terrain below with an odd, detached sense of familiarity. Something was striving to come to the front of my mind. That long rampart of hills . . . .fishing excursions; motor trips . . . . I had been over every foot of them. Suddenly, I knew.

"Elton," I exclaimed, "did you notice where the thing disappeared?"

They both turned and looked at me, puzzled.

"That line of hills," I continued. *"It never rose above them!* Don't you know what's there?"

I wanted to test my theory, as well as my knowledge of local geography, by getting their reaction before I divulged it. Walters still looked blank, but, after a long glance downwards, understanding broke over Elton's face.

"Dinosaur Cave! You mean—"

"Of course. It couldn't have gone anywhere else when it vanished the way it did. That's where it's been hiding by day—it must be!"

Grim exultation shone from his eyes as he turned to meet the sheriff's corroborative nod.

Dinosaur Cave! That endless ramification of gloomy caverns stretching back and down beneath the hills to unguessed depths. I remembered a report by one of Walter's assistants, mentioning a cursory examination of this cave as part of a routine hunt through the several similar formations in the district. Nothing suspicious had been found and no more comprehensive examination was made at the time, owing, I suppose, to the physical difficulties of covering so vast a space.

Dawn was breaking as the deputy brought our ship to rest in a plowed field. He was far too shaken to remain at the controls for the flight back to the airport; indeed, we were fortunate in achieving a safe landing at all, for, as the plane rolled to a stop, he fell forward in a dead faint.

The Desperate Effort

● WE had scarcely reached home when Elton plunged into a fever of activity. Visitors, long distance calls, telegrams—I marveled at the man's tireless vitality as

he brought his plans to completion. I crept away for a few hours rest. He had promised to call me in time for the final act of our battle against the Horror, and I threw myself across the bed, fully clothed, to drop almost instantly into a heavy sleep.

The sun was dropping in the west when he shook me awake.

"Walters and I are going in alone," he explained, as I hastily gulped a cup of coffee. "A mob of men in that cave would spoil any chance of catching the creature unawares."

Then we were roaring along the concrete in the big police sedan, driven by one of Walter's deputies with the sheriff beside him. On the rear seat, carefully placed between Elton and myself, was a large crated wax container filled with anhydrous hydrofluoric acid which had been shipped by air express from the city that morning.

"I don't know whether it will do the job or not, Creighton," the scientist admitted with a tired smile, as we purred along. "Hydrofluoric acid is the most deadly stuff known to science. Like fluorine, its base, it attacks almost all known substances violently. Many of them it ignites spontaneously. After our failure last night, I decided that chemicals were our only recourse—all other weapons had proved worthless. So we have the acid, and this." He drew forth a strange looking weapon; a sort of long pistol with an over-developed midsection and a huge bore.

"Something new from the secret arsenal of the War Department," he explained, meeting my wondering gaze. "It shoots a good sized capsule of trinitrotoluene—T. N. T. The chamber holding the capsule has a heating element built into it which will melt the T. N. T. in three seconds. The discharge is effected by compressed air, and it has an accurate range up to one hundred feet. The Secretary of War sent it by special plane after I talked to him on the telephone this morning."

I stared. "But how do you expect to use them?"

"I don't know. I'm staking everything on taking the creature unawares, and on these things being able to definitely affect it. A long chance, Creighton. If I only *knew* the chemical nature of that part of the creature which is real substance, I could tell how it would react. But I don't, and I'm not likely to get an opportunity to analyze it, so I'm taking a chance. Walters wants to go along and help, but you're not going into the cave. You'll wait outside with the deputy and if we're not back by seven o'clock you can report us missing. *But don't look for us till morning!*"

I stared at him coldly. "If you think I'm going to sit safely outside while you go in there, perhaps to your death, you're crazy. I'm going along and do what I can to help."

His keen eyes probed into mine; then the grim-set lines of his face softened.

"Of course you can come with us, Old Man," he exclaimed, an odd embarrassment in his voice. "We've faced it together so far and we'll finish together if you say so. I knew you'd want to come, but I honestly wish you wouldn't. You see, Walters has his duty as an officer to consider, and I have the responsibility for having started the trouble. But you have no obligation in the matter and it smacks almost of suicide for you to join us."

"Forget it, Elton," I ordered gruffly.

Now the car slowed down, then turned off into a tortuous, rutted dirt road. I knew it for the little-used lane which ran past the mouth of Dinosaur Cave, and recognition brought an apprehensive thrill. Steadily the car mounted along the winding path, leaving the plowed lands behind and entering a region of rank vegetation sprouting unchecked along the road. The hills towered to our right, intercepting the slanting rays of the sun, and to the left the ground fell away, behind a dense tangle of shrubbery, to the tilled fields below.

At length we rounded a bend and the black mouth of the cave, overhung with an unwholesome looking network of vines and creepers, opened from the hillside. The car pulled off onto the uneven, grass-grown shoulder.

"Here we are, sir," announced the deputy, ill-concealed nervousness in his voice.

We got out, Elton handling the wax jug carefully. With a screwdriver he removed the wooden crating, and we were ready.

"Wait till seven o'clock, Barnes—no later," instructed the sheriff. "That will give you time to get to my office before dark. We'll be back here by then unless we decide to spend the night inside," he added, with grim humor.

The man nodded and settled back in his seat. Walters picked up the wax flask by its inset handle and we pushed aside the growth about the opening and entered the cavern.

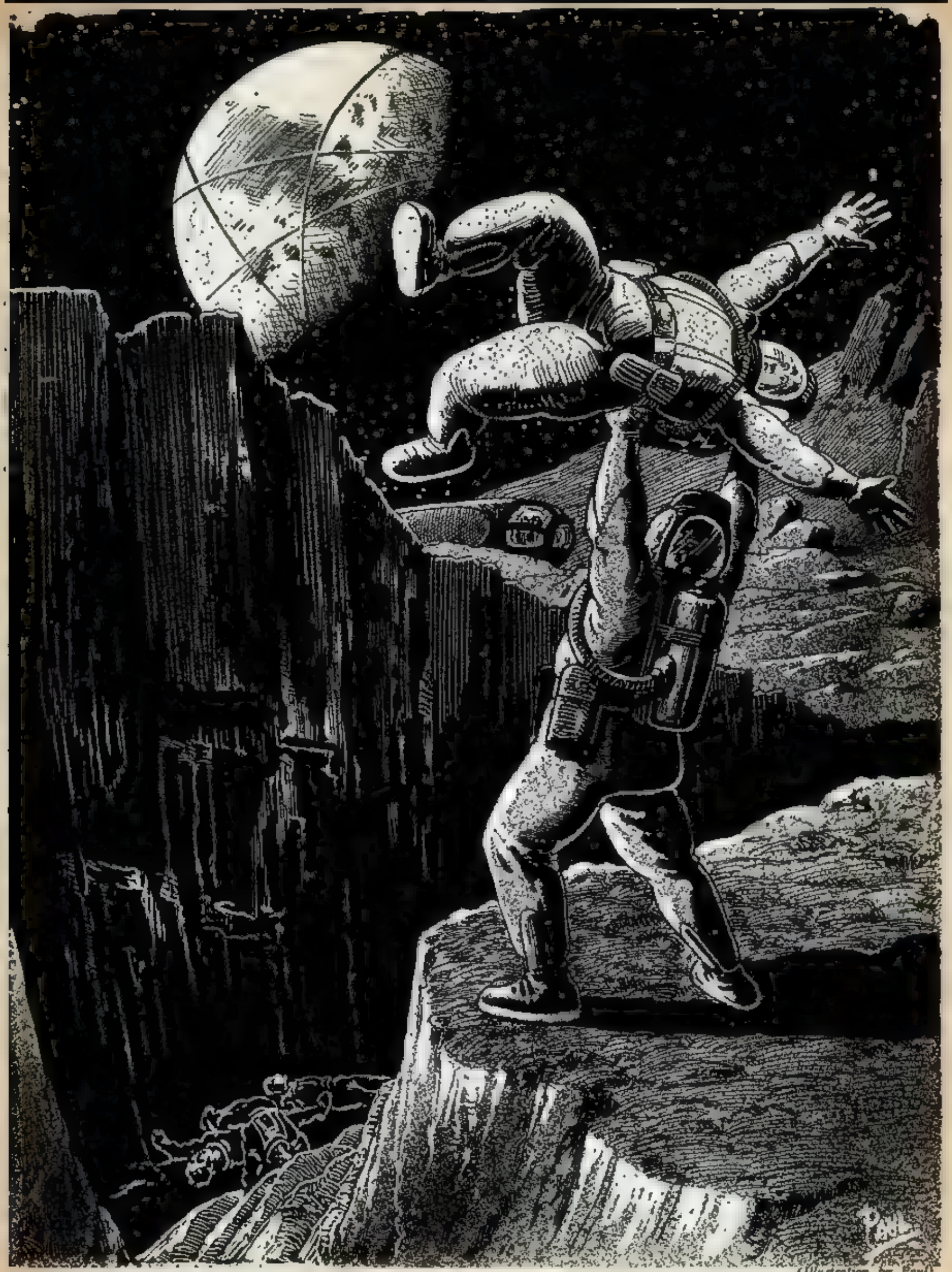
A wave of dank, faintly stirring air met us like a blow in contrast to the warm summer afternoon we had left. It struck a chill into my body and a sense of foreboding to my heart. Elton drew a flashlight from his pocket and sent a cone of cold illumination through the gloom. In a sweeping circle he revealed the uneven rock floor, strewn with dead leaves and mold near the entrance, and the rough walls and vaulted ceiling. The cave was about twenty feet wide at its start and ran back into the mounting hills like a natural tunnel.

Its branches and ramifications were endless, as I have said before, and it had never been extensively explored because there had never been anything especially interesting about it. Even its name, so far as I could discover, had no basis in fact. Where the branching galleries led, or in what part the Horror might lurk, no one could say. As we continued I began to feel that it was a desperate, all but hopeless venture.

We picked our way carefully over a floor which became littered with broken stone as we penetrated deeper. The entrance dwindled to a point of light far in the rear, and we began to pass the mouths of smaller tunnels, opening black and mysterious off the main artery. I wondered again how Elton expected to locate the creature in this underground maze.

We had progressed for perhaps twenty minutes, in dead silence, when we came to a branching of the main passage. The fork to the left continued on into blackness at our own level, but the one on the right began a definite downward trend at the point of divergence, as I could see in the wavering rays of the electric torch. Unhesitatingly Elton chose this path. We entered a narrowing, descending passage where shadows flickered weirdly on walls covered with moisture. The dampness in the air became more noticeable and from far ahead

(Concluded on page 185)



(Illustration by Paul)

Dodson glanced down the precipice and then at Paul. He walked to the prostrate man and picked him up despite his struggling and then staggered back to the edge of the precipice.

CASTAWAYS ON DEIMOS

By J. HARVEY HAGGARD

● No picture of the dangers and excitements of the interplanetary journey would be complete without a description of what it would mean to be "spacewrecked." Some of the greatest and most enduring fiction has been concerned with shipwrecks. We hope equally good results will come from the occasional stories of spacewrecks.

Mr. Haggard concerns himself here with the human aspects of the story as well as with the battle against the elements. The conflict of people cooped up eternally in a small space ship on a desolate planetary body is a theme to challenge the imagination. He has written here a short but plausible and exciting story.

● On Sol 19, 2032, the passenger space liner *Tsetonia* left the earth's atmosphere bound for Mars. At noon of the second day, in space, a meteorite swarm was detected that would surely sweep across the *Tsetonia's* path.

The meteorite storm struck about half an hour later. There were millions of tiny particles, most of which were fine as dust, traveling at the speed of twenty miles per second. Of course, the concussion of these tiny particles was insufficient to crack the exterior of the superhardened space ship shell. But a body in motion, when stopped, releases all of its energy in heat. The energy released is proportional to the velocity. The energy released in each meteorite would be sufficient to raise its temperature to 140,000° centigrade if the specific heat were the same as the specific heat of water.

The shower of meteorites was like a fiery snow, their molten incandescence, upon collision, keeping the leviathan outlines of the liner limned in fire. Their heat swiftly melted the *degravite* screens upon the exterior of the *Tsetonia* and the resultant heat soon changed the metal shell to a cherry red.

Even then, all would have been well had the heat not reached the reserve supply of *vensurite* fuel ore. Refrigerating systems were keeping the passengers comparatively cool within their cabins. But suddenly a gigantic shock had come. The occupants of the cabins were thrown against the walls or to the floors. The heat had penetrated to the *vensurite* ore. The resultant disintegration had blown the rear rocket exhaust from its moorings and rent a huge crack in the hull through which the air was rapidly escaping.

Luckily, partition air valves diminished the danger of the crack. Nevertheless, directly after the liner had careened drunkenly in space, an order was given through a megaphone—connected with a speaker in every cabin—for the passengers to man the lifeboats and prepare to leave the ship. While the passengers tumbled exciterly from their cabins, a continuous S. O. S. went streaking through the ether from a key beneath the finger of a capable radio sender.

Due to the efficiency of the officers of the *Tsetonia* the passengers boarded the many lifeboats in the side walls of the vessel with comparative orderliness. As each tiny dart-shaped lifeboat was filled with human occupants an automatic device closed an airlock, leaving the spindly tadpole of a lifeboat in a tiny closed compartment against the ship's hull. Then a large section of the hull fell away, also operated by automatic control, and the tiny lifeboat slid down a short runway to dart into the fiery storm of meteorites, heading swiftly out toward space—and toward escape.

A young man crouched in the rear of one of the lifeboats, sprawling against the seat which lined one side of the cabin. About him were other fugitives, clutching at their luggage. The young man held a small grip close to his side and peered nervously through his spectacles at the other occupants, or down the aisle to the front of the tiny craft where a small man in ship's uniform sat at the controls, his body a silhouette against the fiery incandescence beyond the transparent prow.

A woman was crying from somewhere up front. By peering around a fat lady, who clutched fearfully at a caged parrot she held in her lap, he could see the wailing woman. There were two children, a boy and a girl, of about five and seven years, respectively, whom she held close. The little boy was also crying, his falsetto chiming in with his mother's. The girl, dry-eyed and wan, looked on with big solemn eyes in which there was more of puzzlement than actual realization of fear.

A burly giant of a man was up front, cursing and clenching his fists. A coarse man whose girth proclaimed that he might have been a professional wrestler, had not his general "get up" proclaimed him to be a traveling salesman, sat back on the seat across from the young man.

His small eyes were staring fixedly at the uniformed man at the controls. He was panting as if exhausted. It seemed that he could not convince himself that all this danger and excitement was real. One of his shoestrings was untied. A checkered suspender dangled from under his striped coat. And there was a small weazened individual who sat beside him, clutching at his own hands and mouthing inaudibly to himself.

● Then the young man's interest was arrested by someone who sat directly opposite him, a girl, who sat calmly smoking a cigarette. One trim leg was drawn up under her, the other, encased in a boot which reached up half-way to her knee, in accordance with the latest fashion, was extended loosely into the aisle. Her eyes were

half-closed, distant. The young man was startled to realize that she was young and beautiful, besides giving the appearance of being sophisticatedly nonchalant.

As for himself, his thoughts were in a wild whirl. He could hardly credit those last few days himself. His memories seemed wild and dreamlike. There were flitting visions of the earth, of the voyage, of the meteorite storm beating against the space-ports of the *Tsetonia*, while the passengers cowered within. Then had come the crash, and the wild dash for the lifeboats.

"Have you got a match?"

Dimly the young man realized that the girl had spoken, that she was looking at him. Her dark hair crept from under her hat to curl up over her ears. It was entrancing and fascinating to his dazed brain. She was speaking to him again.

"Er—pardon me!" he stuttered, although he knew quite well what she had said. She repeated her demand.

"No, I'm sorry. I don't smoke."

The girl was looking at him. A smile was lurking at the corner of her lips. How cool she seemed. How utterly at ease. Then she deftly reached into a purse in her lap and withdrew a cigarette lighter which she applied to her cigarette and then exhaled deep breaths of smoke.

"Of course," she said easily. "It doesn't matter. I just wanted to start a conversation. You seem to be the only one eligible, the only one who isn't entirely frightened to death. Isn't this a very devil of a mess?"

She was as nonchalant as if discussing a trivial motor accident. The young man found himself admiring her.

"It's all of that," he agreed. "And, if I don't look frightened to death, then looks are terribly deceiving."

She smiled companionably. The young man found enough of his masculinity left to be thrilled. Just then the young girl at the head of the car began talking to her mother. The look of fright had not come into her eyes; they were still dazed, wondering.

"Mama!" she cried. "Mama!"

The woman raised her bowed, tear-stained face from the depths of a wet handkerchief. She took her daughter's hand and pressed it.

"What, darling?" she asked softly.

"Mama, where's father?"

The woman did not answer. Instead, she buried her face in the handkerchief again and began to weep. The girl now, also, began to cry with convulsive sobs, burying her face in her mother's skirt.

"Poor thing," said the girl across from the young man. I'll try to comfort her." She started to get up. Just then the woman with the parrot suddenly released the caged bird. It fell to the floor with a clatter. The woman, her face writhing in contorted pain, slumped to the floor gasping, "Pleurisy, my pleurisy!" She was clutching at her heart as she slumped motionless to the floor.

The young woman stooped and quietly examined the prostrate one.

"She's fainted," she said to the young man. "Here, help me lay her on the seat."

The young man did as he was bid. The girl took the woman's hands and began massaging them. The young man felt as if he were in the way.

"Water!" cried the girl. "Can't you get some water? Listen, what can I call you? I'm Melda Vorden."

"Paul Roscoe. There's the water."

Paul had sighted a drinking faucet near the front of the lifeboat. He started forward, kicking the cage, which had lain unnoticed on the floor. The door of the cage flung open and a flutter of green ended with the parrot hanging to the roof, croaking hoarsely. Paul went on to the front of the boat. The burly man who had been cursing was in his way. He was standing, staring back at the lissome form of the girl who stood over the prostrate lady. Paul didn't like the fixed look in his eye.

"Pardon," he said. The man gave him a frown as Paul brushed him aside.

● The water, flung into the woman's face, soon brought her around. Paul, convinced that he was in the way, stood awkwardly to one side, again studying the occupants of the car. The fat drummer was still dazed. He had taken a letter from his pocket and was ripping it to shreds. The weazened little man was pulling at his lips, staring toward the front of the ship where the burly giant stood beside the uniformed pilot.

Suddenly the weazened man jumped up and ran to the pilot.

"Oh God, sir!" he cried. "Is there a chance? Listen, is there a chance?" He fell to his knees. The burly man seized him and flung him back, cursing.

The pilot turned ever so slightly.

"Listen!" cried the burly giant, leaning threateningly over him. "We've got to get out. You hear, we've got to get out!"

The pilot looked at him quietly. Then he pointed to the fiery shield beyond the transparent glassite.

"We'll have to get through that," he said.

The mother began to wail anew, abetted by her children. The burly giant stuffed both hands to his ears.

"God!" he cursed. "God Almighty! Stop that! Stop that!"

The mother heard, looked up in sudden fright. Paul moved instinctively toward her side. The giant looked at him, smiled contemptuously. But when the mother again began to weep he turned to the pilot's side again.

The interior of the craft was becoming very stifled and heated. The pilot shook his head slowly, noting a thermometer.

"Another five minutes will be all, unless—"

"All!" cried the giant. "All! You mean—"

"We've no refrigerating devices. We can't stand the heat, unless we break out of the meteorite swarm. The outer casing will simply melt. Then—"

But he halted. As he spoke the words, the fiery shield suddenly disappeared from the transparent prow before him, came back with a spray of fire, and then disappeared altogether. A black firmament hung before the men's startled eyes.

The pilot gave vent to a huge sigh. His tired face twitched. He had been under terrible tension.

Some one behind Paul was muttering, "Saved! Saved!" Paul felt weak. The big man was laughing hysterically to himself.

"We're out of the swarm," announced the pilot.

"Let us thank God!" came a woman's voice which Paul recognized as belonging to the mother of the children. So close had Paul been to death that he, too, silently and reverently gave thanks for his preservation.

"Yes," continued the pilot joyfully. "Out of it! Right down there is Mars." He pointed downward into the

black firmament which had been suddenly thrown before them. "There's Phobos, Mars' moon, in the distance, and—Good God!"

His ejáculation expressed sudden horror, sudden fright. Paul stepped forward. After a momentary feeling of relief, now came this disquieting exclamation from the pilot.

The pilot was frozen rigid with fright, his finger pointing downward through the transparent prow. Paul could see the void of darkness, sprinkled with stars. There, below them, floated the scarred face of Mars, lighted by the illumination of a sun somewhere behind. A tiny moon was going behind Mars. That was Phobos.

CHAPTER II
Endless Days

● But something huge and vast was whirling into vision, something very near. It was a great ball of cruel rock, hurtling unmercifully upward.

"Deimos!" cried the pilot, whirling the controls swiftly. "Oh, merciful God!"

An unforgettable instant! The rocky surface of the moon flashed upward, broadening swiftly. The full horror of it impinged upon Paul's mentality. The lifeboat had emerged from the meteorite swarm only to swing right into the path of Deimos in its orbit!

The expanse flashed upward, broadened. The ship lurched, swayed, shot sidewise. A woman screamed from behind. Then there came a vicious swing which hurled them sidewise. Paul staggered, fell against the burly man. The giant cursed, lurched into the opposite wall.

The satellite whirled dizzily below. The pilot was glued to his seat, clutching with a grip of death upon the controls.

A moment of suspense. Then the moon's surface swung away. It swept horizontally along. As it reeled swiftly by, below, the tiny craft again gained altitude slowly.

The giant laughed.

"Of course," he cried roughly. "No sir, that couldn't kill us! Yes siree, saved! We'll be on Mars in half a day!"

He was joyous and boisterous. He turned to Paul and slapped him heartily on the back. "Yes siree, as sure as my name's Buck Dodson, we'll be on Mars in half a day!"

Paul was aware that the pilot was unnerved, that he was staring at several instruments in the control board before him. He seemed worried. Suddenly he slammed a lever full around. He stood staring at it with a vacant face.

Then slowly, as a man in a dream, he arose and faced the passengers. His face was gray and ashen as death. When he spoke his voice was dull and listless.

"No," he said. "Sorry. We're going to be marooned. Marooned on a lifeless moon, marooned on Deimos!"

Buck Dodson seized him, spun him half way around by the shoulder.

"What do you mean?" he cried, sweat beading his brow. "What do you mean?"

The pilot shrugged. He turned and pointed to the rocky surface of Demos below. It was floating by underneath, but not receding.

"Sorry," said the pilot. "Our fuel—*venusite*—is limited. You see, it was not taken into calculation when they fitted our lifeboats that these boats would be drawn into the gravitation of a moon. There is just enough fuel put in them to float them to the nearest planet and land safely. Well, they are conserving, even in fuel. We've used almost all of ours. There's not enough left to take us out of the gravitation of Deimos!"

"You lie!" cried Buck Dodson. "You lie!"

The pilot shrugged. Out, through the transparent prow, Paul could see that rocky surface looming slowly closer. His thoughts were in a turmoil. His mind seethed.

"We're going about Deimos in an orbit now," said the pilot. "We'll have to land soon. Everybody ready."

He looked about at the assemblage which was suddenly silent. The giant Buck Dodson was staring fixedly into space. The weazened little man was whimpering. Paul's own emotions were so turbulent as to almost defy analysis.

"But what'll we do on Deimos?" cried Buck Dodson. "Great God! Why, it's lifeless. We'll starve to death. God, we'll die like rats, without food, without food!"

The pilot looked at him quietly.

"I wouldn't think of that—*yet!*" he said with emphasis on the last word. "We have a chance. There will be rescue vessels, and we have a small radio set aboard! There's food enough to last a week, if we're sparing. And plenty of water. There's no use to worry yet, unless someone loses his head. Okay, then, here come's a landing!"

Paul saw the rocky expanse whirl upward. It was a colossal jest. To escape the meteorites and to be thrown upon a lifeless moon. All for the sake of a handful of *venusite*. *Venusite* was a new ore which had been found on Venus. It disintegrated readily and was used as a propulsive fuel for space ships. And their supply was gone.

● So lost in apathy was he that he scarcely noticed the jar as the craft came to land upon a rocky plateau which glistened in a setting sun like opaque glass. A hand was upon his shoulder. He turned to find Melda Vorden at his side.

"Will you help me?" she asked. "Poor Mrs. Kater's had another stroke."

He followed her to the prostrate woman. Her pulse was very low and she had contracted a fever. The parrot fluttered over the woman's body, croaking hoarsely. Paul had a sudden mad impulse to seize the creature and wring its neck. Instead, he pursued it over the interior and finally managed to secure it in its cage.

The sun suddenly sent a flare of purple up over the edge of the plateau as it set. The purple indicated an atmosphere, but it seemed sickly to Paul. He wasn't disappointed when the pilot lifted his brows at Paul's inquiry.

"Oh, yes," said Pilot Croyden. "There's a thin atmosphere, but it'd be poison death to take a breath!" Under the glow of an electric bulb Croyden was rigging up a radio apparatus. "That's what I'm afraid of, damn it! Those upper atmospheric stratospheres will turn back our radio calls just as our own radio is turned back on earth by interference of the Heaviside layer.

Darkness had fallen swiftly upon the little moon. Soon all they could see of the rocky plateau was what was outlined by the gigantic orb of Mars. It was a dejected little party within the space ship that lunar night.

Mrs. Kater's fever rapidly mounted. She became delirious. Melda and Paul kept vigil at her bedside. And then, after an insufferable interim of time, the sun was peeping over the plateau again, casting great shadows in the rocky chasms of the distance and cutting the jagged rocky teeth of the horizon into cold outline.

The day seemed interminable. The castaways hopefully kept watch for rescuers, but no rescue came. When the sun sank again Mrs. Kater was worse and the spirits of the terrestrials had sunk lower than ever. They had divided the food so it would last a week, and their day's rations had been duly doled out. Croyden had found that the exterior atmosphere could be cleansed for human inhalation by letting it in through a valve into a small device which separated the gases into their component parts.

In the days that followed swiftly, the sick woman got no better. Life, cooped within the tiny lifeboat, was in itself a torture. Five men, three women, and two children; in a world to themselves. Paul would have grown to hate those faces, had it not been for Melda Vorden. It seemed that he had known her for years. She had confided to him that she had recently graduated from a famous university, and he was not surprised; her cool judgment indicated a trained mind. Her father was a superintendent of mines on Mars. She was going to him.

In turn Paul told her of himself. He was a clerk in the spaceship offices, had been transferred to Mars, and was now on his way to the Martian base.

That first week seemed like ages.

And, although a full week had passed, there had been no answer to the radio calls. Paul felt a deadened conviction that the pilot had been right, that the etheric impulses had not gone beyond the upper poisonous stratospheres of the tiny moon. The food rations had lasted admirably, but now the scant remainders had been divided so that they would last for another week. Mrs. Kater still had her fever and was very weak. None of the castaways possessed knowledge of the disease. Michell Snazin, the weazened man, had timidly suggested that it was parrot fever and that they ought to kill the parrot. Melda vetoed the suggestion.

Mrs. Martha Caldwell, the mother of the two children, would stand for hours, staring out over Deimos toward Mars. She was spare, and emaciated now. Paul suspected that she starved herself and divided her rations between the children. She wept, almost silently from dry blood-shot eyes, but those hollow racking sobs were worse than her previous wailing lamentations. Buck Dodson, Michell Snazin, and Bilwell Bonds, the drummer, soon began to look at her from where they played cards or shot dice, with hate in their eyes. They had unearthed the dice from somewhere and it now occupied most of their time. Paul had been glad of it. He was always a trifle fearful when huge Buck Dodson let his small eyes wander over toward Melda.

● Secretly, Paul was afraid for the girl. He noticed that Michell Snazin, and Bonds, the drummer, also glanced queerly toward Melda. Paul wasn't afraid of them. It was Buck Dodson, the leader, who inspired fear. He might incite the other two to do anything.

If Melda noticed Buck or any of the others except as a friendly associate she gave no indications of it. She was quiet, self-assured. She cared for Mrs. Kater continually and looked after the two children while their dry-eyed mother stared into space.

But monotony and hunger were creeping in, the thin veneer of civilization was slowly slipping from the men's shoulders, leaving them stripped of all but their primeval instincts. As more and more fearful days passed, Buck Dodson took less and less interest in the games. His eyes, now gaunt and drawn, fell to watching Melda with a bestial expression in their inner depths. It infuriated Paul. He had no weapon. If he had possessed a gun he would have given it to the girl. Once he had asked Melda if she were armed. She looked at him queerly and then smiled. No, she was not. But she didn't seem afraid.

Bonds, the drummer, began to take long dozes. Sometimes Paul thought that he would never wake up, that he was dead. But he would always awake, muttering to himself. Snazin ran his fingers over his almost bald head for hours. And the pilot proved to be very taciturn and reserved; he occupied most of his time with the radio.

If it came to a crisis, Paul reasoned, there were himself and the pilot against Dodson, Bonds and Snazin. He didn't count the help of Mrs. Caldwell. Her mind was slipping, he knew; but Melda might help if it came to out and out conflict.

Then Buck Dodson sidled over to Paul. Directly behind him were Bonds and Snazin. Bonds' eyes were darting about furtively. Snazin kept his eyes lowered to the floor but never far from Paul's feet.

"Listen here, Paul," Buck Dodson said in an undertone. "We got to face things. We're here. We're going to die. We might as well make all we can out of life while we're here. And there ain't no use squabbling. They is five men—and the women—"

Paul was staring at Dodson, his face livid with wrath.

"Listen, you dog!" he cried hotly. "If you try any stunts I'll bore you through and through." He let his hand fall near his shoulder as if he carried a gun.

The bluff worked. Dodson, though doubtful, nevertheless retained caution despite the anger in his eyes. For a moment they stood, eye to eye. Dodson was possessed with a fury which would eventually make him unreasonable.

"Listen, hunky," he had rasped through a corner of his mouth. "Yuh better get wise. If you don't, there's ways of learnin', even you. If yuh've got a gat, which I don't think, it won't do yuh a bit of good."

Paul tried to appear unafraid. He didn't want them to see the livid fear in his heart. Anyway, his bluff held them off for a while.

That night, on the tenth day in which they had been shut in the little lifeboat, Mrs. Kater died. Melda insisted that she be given Christian burial.

"Look here," cried Dodson. He was getting surly and dominant. He was beginning to consider himself leader of the party. "No use bein' squeamish. Just open the lock, shove her in, then work the controls that open the outer door. It don't make no difference what happens once you're dead."

Melda ignored him. She turned to the pilot.

"Isn't there some way?" she pleaded.

He nodded.

"There are collapsible space-suits," he admitted. "They are equipped with oxygen tanks for two hours.

Inasmuch as the atmosphere outside will exert some pressure upon the stout ribbed fabric, there will be no danger of the suits breaking."

"Then some one'll have to go," said Melda firmly. "She's got to be buried—out there, somewhere."

She looked around defiantly. There was silence. None moved. Paul had a sudden picture of himself, out on the plateau burying the woman, and Dodson in the spaceship with Melda.

Melda turned and appealed to Paul.

"You too, Paul," she implored. "Can't you and I do it then?'

That didn't suit Dodson.

"I guess we can fix it up between us men," he said, as if taking the situation in hand. Then he turned as if giving orders. "Now there's a couple of us that's got to go! They ain't no use stallin'. We'll pitch high dice for it. That way's as good as any."

CHAPTER III
One Will Return

● Reluctantly, Paul joined the game which would decide whether he would be one of the two to conduct the funeral upon the dead moon's surface. His conscience pricked him because he could not readily offer himself for the service. He averted his eyes from Melda as they crouched on the floor for the throw.

Paul threw a two, which was low. Dodson's eyes narrowed. He cursed and took his turn. In the end the pilot and Bonds were the ones whom fate chose to go.

The pilot showed no fear. He seemed resigned. Bonds wet his small lips with the tip of his tongue and looked fearfully over at the corpse. He was thoroughly frightened. As the pilot opened a compartment and withdrew the two small folded space-suits from the four which constituted the lifeboat's complement, Bonds started to say something. But there was a look in Dodson's eye which caused him to gulp and keep silence. Paul felt that the drummer was trying to squirm out of the duty.

The men were helped into the stiff suits and bulging headgear was screwed upon their shoulders. There was a round lens in front, and two on the sides, of the globular head. A flexible steel tube ran from the nose back over the head to the oxygen tank. The men looked like huge frogs as they carried the sheet-wrapped corpse into the airlock as the door closed behind them.

Those inside were strangely quiet. They could even hear the hiss of the equalization of air pressure when the outer door of the lock opened. There were scraping noises then, which the men outside made, in getting the corpse down to the ground.

"Death, death!" moaned Mrs. Caldwell, waving her arms before her. "Yonder—death—it's coming for us all."

Dodson looked at her and cursed vilely. She was standing before the transparent nose of the ship, gesturing wildly across the plateau. Her hair was stringing back, unkempt. The sun was rising and weird shadows crept across the plateau from the jagged peaks. For several days the crazed woman had imagined that the shadows were living creatures, stalking down upon the helpless castaways.

Melda tried to comfort the children, who were whimpering. Out across the plateau Paul could see the bulky mannikin figures of Bonds and the pilot, supporting the corpse between them. The gravity of Deimos was very small. The two men were taking great staggering steps, each of which covered yards.

Finally, they disappeared behind a rise in the plateau.

Paul nervously glanced at his watch. Two hours was the time limit. They would have to bury the woman and be back in that time. Their oxygen supply would then be exhausted. If they were caught on the moon with no oxygen it would mean a horrible death by asphyxiation.

The sun had risen, was glinting hotly across the black plateau. An hour had passed. Paul began to look at his watch. Melda was preoccupied with the children. Snazin had found a copy of the New Testament and was trying to read. His furtive eyes stole out across the plateau and then back to the book in his hand. Mrs. Caldwell was squatted before the transparent nose of the prow, teetering back and forth, her hands clasped around her knees. She was moaning a song in a sort of chant. Dodson was trying to play solitaire on the floor.

Another half hour passed. Thirty minutes to go. Paul could feel the sweat on his brow. They weren't in sight. He had looked at his watch a hundred times. How slowly the hand crawled round, and by slow degrees, that half hour crawled around also. Snazin had dropped his testament to the floor. Dodson had been on the last game for half an hour. He was trying to pretend that he was playing cards, but he passed the cards upon the floor very, very slowly. Mrs. Caldwell had raised her voice in a song of religious supplication.

At last Paul brushed his eyes with his clenched fists.

"Two hours," he said hoarsely. "I guess they're not coming back. Maybe we should have gone out after them." He looked meaningly at the two space suits left.

"I thought of that too," confessed Melda, straining her eyes out over the barren plateau which had begun to emanate heat waves under the sun's hot rays.

● "Well, we just gotta forget it," ventured Dodson. His voice was hoarse with suppressed emotion. He tried to pretend disinterest, but his hairy hand trembled slightly as he shuffled the cards. "We cain't help it now. Maybe it's just as well that they died out there as in here."

"Shut up!" cried a frantic voice. "Oh, God, shut up!"

It was Snazin. He was looking around the lifeboat, seeing it as a tomb through his horror-filled eyes.

"Don't be a rat," leered Dodson. "It's coming. We might as well face it. Hell! they ain't no more chance of rescue than if we was in Hell itself!"

Snazin lost all control. He broke down and cried. It is a pitiable sight to see a weak man cry.

Paul suddenly noticed that Melda was startled, was looking up and down the lifeboat.

"Where's Mrs. Caldwell?" she cried. They looked about. The woman had mysteriously vanished. Snazin stopped crying and looked up with wet eyes.

Then, suddenly, there came a faint hissing sound. A dry chuckle.

"Listen!" hissed Snazin. "Listen!"

Melda suddenly understood. She sprang toward the airlock, which was closed.

"Mrs. Caldwell!" she cried. "Oh God!"

Paul, too, understood. The maddened woman had entered the airlock, was flinging herself out upon the

poisonous atmosphere. Melda was struggling with the inner door.

"Leave that alone!" snarled Dodson. "Want to kill us all?" He seized the girl about the waist and pulled her back. Paul knew Dodson was right; that hissing had come when the outer door of the air lock had opened.

Dodson's first thought had been to save himself from the outside atmosphere. Now, clutching at Melda, his face changed. The contact of her body was arousing him. He wrenched her head backward, sought to meet her lips. Paul seized the huge shoulder of the giant, twisted him around.

Then a frenzied wailing from the two children suddenly arose. The boy and the girl were beating against the glassite, struggling to get through, to where a ghostly figure was reeling, choking. As the horror of that scene came to the three terrestrials they parted.

It was Mrs. Caldwell, out there. She was choking, clutching at her throat. Her face was constricted into a mask of leering horror and pain. Her tongue was protruding. She staggered grotesquely into the air in leaps and bounds, a weird effect of terrestrial muscles on the lesser gravity of Deimos.

Then the mad woman leaped forward in the agony of death, her arms outstretched toward her children. She slumped against the glassite, then slid downward, her face a mask, leering from hell, which vanished as her lifeless body fell back to the rocky surface below.

The children were frantic, screaming at the tops of their voices. Melda shuddered. She crept back to the other end of the lifeboat, averting her eyes. For the first time she had lost self-control. Paul and Dodson, too, were rent inwardly by the gruesome scene.

Then Melda lighted a cigarette. She came forward with perfect self-possession, though she did not look at the dead figure beyond. She tried to draw the children back, but to no avail; their childish terror lent wild strength to their tiny arms. Melda turned.

"You've got to get her away from there?" she said. Paul and Dodson looked at each other. They understood. Neither would leave the lifeboat without the other. Without any word they each began donning one of the remaining space suits.

The poisonous air had first to be pumped from the lock before the inner door was opened. Then Paul and Dodson stepped inside. The airlock was like a tiny cell. It was deathly dark. His space-suit stifled him. The outer door slid open. Then he bounded lightly to the ground, followed by Dodson. They advanced to the prone woman. Paul quickly assured himself that she was dead. Then they picked her up without hesitance and carried her across the plateau. Paul looked back once.

● He could see Melda, an arm around each of the children, peering through the glassite. Snazin stood behind, also watching the second funeral procession as it moved across the lifeless planet. Paul had a sudden conviction that only one either Dodson or he, would return alive to the space ship.

Beyond the first rise the plateau fell into a rough slope. As soon as they were lost from the view of those in the lifeboat, they prepared a rude grave for the woman. It was merely an unmarked cairn, but it was the best they could do. With a few crude words of prayer Paul committed the body back to the elements: "Dust unto dust, and under dust to lie." Then he looked across for Dodson. A deep and precipitous gorge rent the plateau. Dodson was standing on the edge, looking downward. He turned to Paul and gesticulated down. Paul, fearful of a trap, advanced to the brink and peered over.

On a ledge, fifty feet below, were three bodies. The space-suits had been opened, exposing the contorted features of two of the corpses. Paul read the story: the pilot and Bonds had thought to rid themselves of their corpse by flinging it over the ledge. A crumble of freshly rent rock on the precipice edge was evidence of a sudden slide. Beside the three corpses an avalanche of stone had fallen.

Bonds and the pilot had slid down with the crumbling edge of the precipice. Though probably unhurt by the fall, they had been unable to reach the top of the precipice. Below them, the ledge fell perpendicularly, but there was no escape; they had been forced to wait upon the ledge while their oxygen leaked out. Finally, they had jerked open their headgear, in despair, as asphyxiation seized upon them, and they succumbed to the poisonous atmosphere.

Paul became aware that Dodson had turned. He could see Dodson's face, leering bestially through his headgear, and he understood. One of them would not return to the lifeboat!

Both men sensed the situation at once. They moved warily back from the edge of the cliff, then approached each other, searching for an opening. Even to Paul, it seemed weird and unreal. The sun was high now and the reflection through the heat waves cast mottled shadows which flowed up Dodson's space-clad body in purplish waves.

Then Dodson struck, unleashing all his fury in one drive of his body forward, behind his fist. His metal gauntleted fist might have broken the glassite in the round lens before Paul's face, but it didn't land. Paul dodged swiftly, driving his own fist into Dodson's fabric-protected breast.

Then, for a moment, they clung together grotesquely, each trying to rip or tear the protecting space-suit from the other's body. But the fabric was strong. The glass in the head-gear would not shatter under the force of a pummeling fist.

Then they parted, came together again, sparring. Paul quickly discovered that he was superior in skill if not in actual strength to Dodson. Crash! Dodson's huge fist had caught Paul unawares. It had come out of the very glimmer of the sun from the hard vitreous rock. Paul staggered back, stunned.

Thoughts of Melda cleared his brain. As Dodson drove in, fists flailing, Paul feinted skillfully. He could picture Melda, proud and sensitive, at Dodson's mercy. With a fury born of desperation he took the aggressive, pounding forward into Dodson's body. Dodson was panting heavily. His breath was clouding the lens before his eyes. He lurched forward blindly, groping with outspread arms. Paul felt no mercy. He put every ounce of strength in his body into a blow aimed at Dodson's weird head-gear.

Dodson slumped forward. Even then, Paul's anger did not abate. Madness born, partially, of those long, monotonous days seized upon him. He grasped the

inert, feebly struggling body of Dodson, using the legs to swing the body, as one swings an Indian war-club. The light body of Dodson swung easily. His weight was negligible upon the small lunar body of Deimos. And Paul swung the body at the hard rocky ground, as one would brain a rabbit. It would surely have crashed the glassite lens of Dodson's headgear to a thousand fragments, and Dodson would have been exposed to that poisonous atmosphere.

CHAPTER IV
In the Pit

● But Dodson's mind had cleared. He must have experienced a moment of horror, swinging with his head arcing toward the ground. He kicked swiftly, skillfully, to the groin of the man who swung him.

Paul collapsed in agony. Dodson, let loose in mid-air, spun in an arc ten feet away, where he sprawled on the very edge of the precipice. Then he slowly gained his feet. Paul was doubled up, groaning. Dodson glanced down the precipice, then back at Paul. He walked to the prostrate man and picked him up, despite his struggling, and then staggered back to the edge of the precipice.

Pain racked Paul's body. His struggles were weak. He was in a half stupor, yet the thoughts racing through his mind tortured him with keenest agony. Melda! Dodson would go back alone!

Paul was falling through the depths, the universe, as seen through the circular glassite plate was spinning before his eyes, presenting a whirlpool panorama of depths and jagged cliffs, the sun in a purple sky, and a weird frog-like head peering down over the precipice edge.

Paul's fall was short. He suddenly jolted upon something soft, sprawled to one side and came to rest with his face turned upward. He saw to his horror that he had fallen upon the body of Bonds, who was leering open-eyed in death, within a foot of him. He had fallen fifty feet, yet, due to the lesser gravitation it had not harmed him. Above, Dodson was waving over the precipice in a last mocking gesture.

Paul's bodily pain was instantly forgotten in mental anguish. He passed through a thousand tortures. Groaning, he rolled to one side. The oxygen was becoming stale. The pressure was lessening in the tank at his back. He'd have to let out more.

God! Why not end it all? Why not loose all the oxygen into the outer poisonous atmosphere, or better still, why not tear off his headgear as Bonds and the pilot had done? But Paul shuddered as he caught sight of the paralyzed, contorted faces of the dead men. No! he would not die without an effort to escape. If, in the end, he were unable to escape, he might plunge over the ledge to the bottomless depths below, just as his last wisp of oxygen played out. But first he would try to escape.

He felt better now. Tensing himself for a spring the fifty feet above him seemed to lengthen. He could do it, he knew, if he possessed his normal strength. He leaped. It seemed that he went up barely half the distance before he fell back to the ledge. When he gained his feet, he was panting. He let out more valuable pressure on his oxygen to prepare his body for the next jump.

He went better than thirty feet that time, he was sure. But he began to despair. Frantic, he leaped again and again, in swift succession, without giving himself time to rest. The last time he leaped too far to one side and fell on the edge of the ledge. For a moment, he hung on the brink and then drew himself over.

He was done. He couldn't do it. Dodson had won. Paul felt a strange mental lethargy, he lay prone, his hands half buried in the silt of the avalanche that had carried Bonds and the pilot to their death with their grisly burden.

Then suddenly, Paul was on his knees, groping in the silt, stringing it through his fingers. He was babbling like a maniac. He felt like cursing, like crying; his senses were leaving him. And then, suddenly, he was weak again. He fell, over-exerted, upon one side, his outstretched hands buried in the gravel of the fallen slide.

Melda became more anxious as the better part of an hour passed and Paul and Dodson did not return. Then she sighted a lone figure coming over the rise in the plateau. Snazin sighted it too. He pressed his face expectantly close to the glass to discern which of the men it was. No emotion seemed to pass over Melda's mask-like features. Then Snazin gave vent to a chuckle. He turned to survey Melda.

A queer little smile of resignation played over Melda's lips as she recognized that the lone man who returned was Dodson. Good, thought Snazin. Only Dodson would come back.

The children were crying. Melda, her head lowered, went back to them and sought to quiet them. This Snazin knew. He could hear her. He stood impatiently awaiting for Dodson to come back. A strange quiet had fallen upon the occupants of the lifeboat. The children had suddenly stopped crying, as if something strange and novel temporarily attracted their attention. Snazin turned, slightly curious. The children, tearful, but wide-eyed, were staring at Melda. Melda was at the side of Snazin, slightly behind him. Her hands were upraised and she held a huge metal lever about a foot long in them, a lever that had been detached from the control board of the lifeboat. Snazin was dimly aware that the lever was moving downward.

● For a long time Paul lay in a mental and physical stupor. Then he felt as if something was beating his brain. His tortured lungs were twisted for want of air. God! for one breath. He moved to wrench off the headgear, if only for one inhalement of the poisonous atmosphere before he died.

Something was still thumping him. He halted. A rain of rocks was coming from above. He stared dumbly upward. There, on the edge of the precipice, stood a space-clad figure, dangling a rope down toward him. The space-clad creature was throwing rocks at him.

Paul couldn't believe it. Something seemed to have snapped in his brain. His will couldn't control his muscles. Suddenly he was weeping in joyful madness, was crawling in agony toward the end of the rope which dangled on the floor of the ledge. By dint of much effort he managed to make it fast about his waist, then he coughed and choked. The world again became dim. He remembered an eternity of dangling in emptiness, a beautiful face out of the chaos of mad dreams—Melda's—and then he was upon some grotesque frog-creature's back, struggling across endless plains.

(Concluded on page 184)

(Illustration by Paul)

One moment the world was there. The next moment it was not. And there was nothing but a lot of fragments slowly widening their distance from each other.

THE ISOTOPE MEN

By FESTUS PRAGNELL

● The mystery of the asteroid belt remains one of the fascinating sources of speculation of modern science. Many theories lean toward the conclusion that a major planet occupied the space now filled with countless thousands of planetary fragments.

What happened to the planet, if these theories are correct? Was it inhabited; was it destroyed by a cosmic accident or on design by intelligent life? These questions form the basis of this unusual story by our English friend. He has, incidentally, worked into this story a novel idea about the development of a new form of life, that should appeal imaginatively to all of our readers.

● The three men had a portentous air, as though they faced a decision of great importance. The tallest of them was obviously uneasy "But the dogs died, you know," he objected suddenly.

Outside, the countryside was shrouded in thick fog, through which the peculiar whistle of the twenty-second century air-trains, following invisible lines of Y rays, came faintly to the ear. Inside the laboratory, concealed lights, reflected from the smooth metal of the ceiling, gave a perfect imitation of diffused daylight.

A man of a former age might have taken these men to be three very masculine women. They were enveloped, except for their heads, hands and feet, in one-piece overalls; and their cheeks were innocent of any trace of hair. The hormone that sets the beard growing at puberty had been neutralized in their blood in accordance with the universal custom. Thus had the male sex freed itself of the daily trouble and pain of shaving.

The youngest man, an athletic young fellow of twenty-four, laughed and slapped the tall one on the back. "You seem nervous, Armstrong," he said. "I know the dogs died when we tried the machine on them, but still, I may not. A human being has a stronger brain than a dog has: I am confident that I can go under the nerve-stilling machine, practically, to a state of death, and still find the power to recover. If I do not, well, there have been many martyrs to science for less important causes than ours."

"You have the right spirit, my son," said the middle-aged, thick-set man whose overalls were very badly soiled; "there is a racial mind, of that I am confident; and when your brain has been deprived of nearly all outside stimulation, the contents of the racial mind will come to the top.

"How do the birds know when and where to migrate, or how to build nests, if they have not inherited memories subconsciously guiding them? Why do we fear, instinctively, certain things? Though I admit feeling that I would rather some one else faced the danger, Christopher, yet we must have a competent, scientific witness, and one who has the interests of my investigations at heart. If you are ready, step into the chair and I will commence dulling your conscious mind so that the subconscious can take its place."

It was with more trepidation than he cared to admit that Christopher sat in the chair with the nerve-soothing machine at its back and, while his father adjusted the leather cap over his head, took what might be his last look round the laboratory. His father's theory was that experience is never lost, but that the memories of all our ancestors are stored in our brains if we can but find them. Instinct, which plays a much more important part than reason in our lives, according to the scientist, was but the sum of these racial memories.

A pad was adjusted to Christopher's neck and, as the combined magnetic field and low temperature began to impede and soften the electro-chemical impulses passing along the microscopic nerve-fibers of his spine, his body seemed to grow cold and distant. More pads were placed at his temples to affect his optic nerves, and all became dark. Other pads were placed over his ears and nose: only the sense of taste remained.

"He's off, all right," muttered Armstrong.

"Yes," said the father, "if it is as I hope and believe, the individual, Christopher Barlem, is, for a while, dead, and only that part of his mind survives that is the common property of the race. He may be living through my life as it was before I begot him, or he may be gazing upon scenes our ancestors saw, hundreds of thousands of years ago."

● The young man's features had assumed a rigid immobility. Barlem altered the adjustments. A slight pucker appeared between the recumbent man's eyebrows, and he shivered. To Armstrong it seemed like producing movements in a corpse, and he wished he had not agreed to the experiment.

"But," he objected, "if we have almost stopped the sensory impulses going to the brain, haven't we also checked the motor impulses coming from it? Perhaps we have interfered too rapidly with those that prevent the heart beating."

"I think we have," said the father, "the pulse is very rapid."

A change was coming over the face of the sleeper, a look of horror gradually taking possession of it, as though he gazed upon scenes of unimaginable terror. That look became fixed, as though Christopher had died in a state of great fear.

For almost an hour they watched, lifting a heavy, helpless arm from time to time to feel the pulse.

"Quick," cried Armstrong, suddenly, "the breath has almost stopped."

Barlem snapped off the switch. Very pale, he felt the pulse again: there was only a faint movement. "I was not expecting such a sudden breakdown," he muttered. "Help me carry him."

Together they lifted the body and carried it to a couch where a machine applied artificial respiration. They administered oxygen, adrenalin and other stimulants. Had the process gone too far, and would Christopher never recover?

A nervous stimulus, applied to the brain, produced a quiver of an eyelid. "Only a matter of time," announced the father, with a sigh of relief.

At last the body was freed from its encumbrances, and the eyes opened, staring blankly about. It was not Christopher Barlem that looked at them, but some uncivilized ancestor.

"Look out!" called the father, but too late, for the young man sprang straight at Armstrong's throat. Barlem wrenched his son away and secured him to the couch once more; but not before the beryllium-copper-steel of twenty-second century dentistry had extensively lacerated Armstrong's neck.

"His conscious mind is not yet in control," explained Barlem, watching the frantic struggles of his son. "Do you notice," he asked, "how the left arm hangs idle? The nerves of that arm are dead."

"Will it recover?"

"I think so. The healthy nerves will grow again in the sheaths of the dead fibers, like a plant sending out new roots. We will keep the muscles strong by electrical treatment, and in time the limb will be as sound as ever. Help me get his overalls off, and we will put him to bed. Tomorrow, if he is strong enough, we will hear what he has to say of his sojourn in the past."

However, a week passed before the patient had sufficiently recovered, and the two men met at his bedside.

The room was a large one with wide, open windows looking out on grass terraces, pools with fountains, and lines of trees stretching away to the horizon. Occasionally a bee buzzed enquiringly in. Christopher sat propped up in bed, rather pale and thin, and bearing one arm in a sling.

● My first sensations while under the influence of the ray, said Christopher, were the gradual dimming of the light, the fading away of sounds, the sense of receding to an infinite distance. A wave of undreamed-of comfort filled the universe. All necessity for effort, the struggle and striving that are life, was gone. The distant beating of my heart was like the thumping of a powerful machine, to which I listened without interest.

All this was usual, but now came, through this sea of ease that was akin to death, a disturbing influence, a throb of emotion, a pulse of indefinable fear. All will was gone, fear filled my mind, meeting no resistance. Fear, and fear alone, existed. It was the bed-rock of existence, that ultimate terror of dissolution that never leaves us; that provides the motive force of life; the power that keeps us striving to live through the greatest pain, illness or despair, the spur that never ceases its driving while life beats in our bodies. I was experiencing it now in its final simplicity, an awful force racking my mind, agonizing because of my inability to make any response.

It came in throbs, stronger and stronger. At first it was formless, then it began to assume definite shapes, to become terror of this or of that. Fear of destruction merged inextricably into terror of the unknown, into fear of new experiences. At the same time I seemed to possess many different personalities, to pass from being one person to being another. One moment I was a savage crouching in a jungle at night, possessed with terror compounded of fear of wild beasts and of imagined things of the dark: the next, I was a girl trembling at the dawning prospect of womanhood: then I was a savage child in a tree, and the space below was like a maw waiting to devour me.

I shared the thoughts of these and many more, and the feelings of all were the same: a terror of dissolution, a terror of the unknown, and a passionate desire to live and to propagate life. Such is the mental motive power constantly maintained by the racial mind, much in the same way as the heart pumps blood through the body.

My mind flitted from individual to individual like a butterfly from flower to flower. As I lighted on each person I passed his early life in instantaneous comprehensive review, thought the thoughts and felt the feelings of that individual, was that individual, for an indefinable space of time. It was like living a multitude of lives in a series of vivid flashes; and all the time it was nothing but a collection of extremely detailed memories.

None of them had any beginning or end for, of course, none of us is conscious of any beginning to his life, or can transmit a memory of death. I was a priest in a temple and fled thence with a woman; I was a worshipper in that same temple, and helped to hunt and to slay that same priest; I fled from cave-bears; I hunted sabre-toothed tigers; I was a soldier in Nebuchadnezzar's army.

I was a scientist with knowledge far surpassing what I possess in this life. I traveled in antiquated airships and submarines; I knew the secret of atomic power; I, yes—I, traveled in space ships. Whether my visions all related to the past, or whether some of them belonged to the future, the fact remains that I traveled in space ships.

It was like a series of illuminated pictures, some bright, some faint. Where the intelligence of the subject was strongest, there I had the clearest, most detailed stories; where it was weak there was little more than a welter of emotions. And, oddly enough, the lives of some obscure men and women were clearer than those of brilliant scientists and authors, while many kings and queens made hardly any impression on the stream.

Clear above them all stands out the story of a simple boy. It has made this lasting impression, I think, because of the vividness of his perceptions, and because of the frightful cataclysm through which he lived while still of an impressionable age.

That boy, I did not realize it until a little while ago, did not live on earth, but on another planet. This planet was farther from the sun than we are, and its nearest neighbors in space, apart from its only satellite, were Jupiter and Mars. It was a peaceful, pleasant world, or seemed so to a child, and was the only inhabited

planet in the Solar System; inhabited, that is to say, by humanity. On earth, mankind had not yet risen to challenge the sovereignty of the beasts.

He, or I (for he seemed to be myself), had no brothers or sisters, but lived with my father. I remember very little of my mother: she died when I was very young. We had easy lives, for nearly all necessity for work had been banished by scientists of by-gone ages. Little remained of that science now, for, having solved nearly all human problems, it had fallen into disuse. There was a library containing the knowledge of the ancients, but none now ever passed the electronic dust-barriers at the doors, or threaded the coils of profound wisdom through the idle reading-machines.

What education there was, was conducted by tutors. Myself and eleven companions of both sexes were in the care of one of these, Parmel, a gentle, white-haired man who spent most of his time playing games with us.

CHAPTER II

Parmel's Secret

● Our years were very long, but I think I was of an age corresponding to about seventeen earth years on the day when I approached Parmel, as he sat, half asleep, in the garden. I began to ask him questions, for my mind was full of curiosity.

It was a perfect day, warm and bright, with small, white clouds floating leisurely across the sky; but so accustomed were we to perfect weather in a world where the winds and the temperature were controlled by humanity that we did not notice its beauty. The sun shone, but it was not a conspicuous object among the half-dozen artificial suns that competed with it: mechanical bodies that patiently provided us with light and heat, and seldom required attention.

Parmel sat among clumps of tall, feathery grasses, on an upholstered garden seat, equipped with a rock shelter under which it slid automatically, out of the dew and showers of the night. Before him was a shallow pool in which little creatures rather like frogs were jumping and swimming about.

"They tell me, Parmel," I began, sitting beside him, "that when I want to know anything I should ask you."

"That is so, Hasteen," he replied, turning his grave, grey eyes on me, "what does my little one wish to know?"

"A few days ago my father took me on a visit to my uncle who lives to the North, and we went to a big building where there was a machine they called a telescope. Looking into the eyepiece of this machine, I saw a rough grey ball with black markings. 'The masterpiece of our ancestors,' said the attendant, 'the sphere that provides our heat, light and power, and has made life so easy for us.' 'Terrible thing!' I heard father say, as he looked at it. What did he mean?"

Parmel looked troubled. "Do not inquire into such things, little one," he said, stroking my hair. "It is not good to be so curious. Let us play with the ball machine."

I pouted. "But daddy told me to ask you. He said you would tell me."

He sighed. "Well, if you must know, you shall. See all those little suns sprinkled about the sky, providing us with light and warmth? They were made by men, long ages ago. The moon, which you saw, sends down the power, which is transmitted to the little suns, and turned by them into light and heat. Now let us play."

I would not play, but pondered this explanation in silence.

"But if the moon is cold and dark, as I saw it, how can it send down heat and light?"

"Never did I know a child with so much curiosity," exclaimed Parmel with another sigh; "but that strange man, your father, says your questions are to be answered, and answered they shall be, and truthfully. The power from the moon is atomic power. Wait one moment." He went into the house, to return carrying a green metal box by its handle.

"This, Hasteen, is the heater that keeps up the hot water supply in my home."

He carried it to a small statue, where he plugged into two holes cunningly hidden in the mouth of a sculptured fish at the base.

"It is a machine for obtaining atomic power," he exclaimed, removing the case.

I looked at it. It seemed to me merely a device for creating a field of electro-magnetic tension betwen two brass plates. There was nothing for the energy to act on.

"Put your hand into the cup in the middle of it, it is quite cold, and see what you find."

I did so, and drew out a small disc of lead, which I examined and returned. Parmel threw the switch, first warning me not to touch the uncovered machine. The leaden disc jumped up to occupy a spot exactly central between the brass plates. Almost immediately it changed into a round ball of suspended molten metal whose heat I could feel on my face and hands. It began to glow dull red, then bright, until it was a ball of intense white fire at which I could not look.

● Parmel switched off. "These unshielded rays are highly dangerous," he explained, "therefore I stopped the process before the lead had really begun to warm up. That ball will emit heat and light a hundred times as intense as that, and continue to do so for years.

"An atom consists of protons and electrons, the protons being units of positive electricity, while the electrons are units of negative electricity. All the protons and some of the electrons are contained in the central nucleus of the atom, while the remaining electrons circle round this nucleus much in the same way as the planets travel round the sun.

"Now the electrons are not restricted to one fixed orbit, but each electron has a limited number of definite orbits which it may occupy, and it may jump from one to another. When it jumps outwards it absorbs a quantum of energy; and when it jumps towards the nucleus it emits an equivalent quantum of energy.

"Many thousands of years ago, when science was at the apex of its power, men discovered the way to release this energy of the atom. An intense magnetic field caused the electrons to drop into smaller orbits, and even into the nucleus itself. That was what made that leaden ball so hot.

"Now when an electron thus fell into the nucleus, the atom changed, and became an atom of another element. Three such changes turned lead, which has 82 planetary electrons, into thalium, which has 81, then into mercury, with 80, then into gold, with 79. Or rather, into an

isotope of gold, that is to say, into a substance having all the properties of gold, except for a greater weight. Isotopes are common in nature.

"The power thus obtained was tremendous. We produced aluminum far heavier than lead, and solid oxygen that refused to melt. These unnatural atoms showed a strong tendency to absorb energy and return to more natural forms. Elements that changed into others were found to be highly dangerous, and the rays formed, where power was produced in bulk, had harmful effects. Therefore, the main production of power was transferred to the moon, which to this day sends down an invisible beam of energy which, transmitted to our globes, is radiated down again.

"In this way we have made the whole of the globe habitable except the extreme South Pole, instead of merely the equatorial belt, which is the only area on which the unaided power of the distant sun can support human life.

"The last step was to move the moon from its orbit, and fix it over the North (magnetic) Pole. This was done to obviate the difficulties of having a moving source of power. When our nearest neighbor in space, the massive Jupiter, passed near our planet it caused perturbations in its orbit and that of its satellite. The great beam no longer fell on the receiving plants: all the little suns winked out, and millions died of cold before the scientists brought the moon back into its orbit.

"Such is the tale, Hasteen. I have told you, a child, more than many grown-up persons know. Now let us play."

I agreed, for my mind had acquired as much knowledge as it could digest at one time. We rode on our kolabs, creatures with round yellow bodies and single snaky legs with a pad at the end. They progressed by jumping, and obeyed verbal commands. We made them throw us high in the air and catch us on their powerful tails. Seeing us enjoying ourselves, the others came to join us, and we swam in the lake and played with octopi. A great snake, with beautiful gold, red and blue markings swam with us. We had never seen its like before, but we had no fear, for the last harmful creature on our world had been destroyed, long ages before.

● That night, as I lay on my wonderfully soft bed, I pondered Parmel's words. Next day, at the first opportunity, I faced my tutor with a new question.

"I understand now what the attendant said, but why did father call it a terrible thing?"

I saw that he was profoundly startled. "There is nothing more to tell, child," he said, hastily; but I saw his pallor and the trembling of his hands, and knew that he lied.

"I'll tell father," I cried, stamping my feet in temper.

"Don't be cross with me, Hasteen. There is nothing else."

I raced away from him, knowing that he could not catch me except on his kolab, and jumped into my machine amongst the bushes. Pressing the button marked "Home," I was carried through the air to the lawn before my father's house. Running in, I found him sitting alone in his room, for he had a love of solitude that marked him as slightly abnormal. He ignored my entrance, for he was listening to a mechanical rendering of a song sung by long dead singers; and I knew he must never be disturbed while thus engaged.

When the music ceased I told him all. "Wonderful child," he said, fondling my brown wavy hair, "you have that desire for knowledge for lack of which our world is about to perish. I will tell you what Parmel dare not.

"Our planet is divided into two hemispheres, each ruled by tyrants who fear that the acquiring of knowledge by the people might make their positions unsafe; therefore they have forbidden learning. What I am about to tell you I have learned by secret ways. You must never repeat it, or my life will be forfeit.

"There is a crisis facing our world which our rulers will not allow the people to hear of lest the ineptitude of their government be revealed. The power in the moon is nearly at an end. For countless generations it has kept our planet warm and fertile; and whereas it was once big enough to be easily seen, and to give us light at night, now it is but a few miles across, and visible only in a telescope. The power supply is already reduced: the globes are not so bright nor so warm as they were. When it fails altogether the great majority of us must perish, for only at the equator will human life be possible. Already there is bickering between the rival governments over the apportionment of power. Arguments that may end in open warfare at any moment.

"The scheme has been suggested of capturing another heavenly body to be a young, healthy moon for us, and of sending our exhausted satellite off into space. But the science, that plucked the moon from its place in the sky, was of a distant generation whose secrets are forgotten or hidden. Such dreams are vain."

It was a thoughtful and rather frightened young man that now listened to his father's words.

"No one knows what can be done," he went on. "We might build ourselves power plants on the earth, as was done in the past; but the people are sunk in sloth and apathy, caring little about the approaching danger, provided that their immediate comforts are not interfered with. None can even acquire knowledge that might aid us in avoiding our doom; for the autocrats have forbidden any approach to the library that contains the wisdom of the ancients."

I pondered long over all this, and my secret desire was to enter the forbidden building, and to absorb the knowledge hidden therein. My solo flights, I made many of them, tended always to lead me towards it, and I studied the lay of the land. It was a grey stone building, much corroded by weather, set on a barren mountain, the only approach to which was through the air. In one place the roof had fallen, and shelf upon shelf of wire coils stared up, mutely protesting to the sky at this ill-treatment of the fruits of the labor of the ancients.

The jagged hole drew me like a magnet. To enter by any of the doors was, I knew, to be instantly seen on the vision screens at the police offices, and the police plane would be there in a few moments; but I thought that that hole worn by the wind and rain afforded a means of entering unobserved. A thousand times, in my dreams, I flew in, and found wonderful things inside.

At last, with the intrepidity of youth, I ventured in. Softly as thistledown my little machine sank through, and rested on the debris on the floor. With wildly beating heart, I stepped out. In thus breaking the orders of

authority I was doing something not one in a thousand on our world would have dared.

CHAPTER III

The Forbidden Building

● Windows of quartz lighted the rooms, and I was glad of this, for I dared not try the lights. Dust and rubble covered everything in this particular room, and the frayed wires would break on their passage through the reading machines; so that I soon decided not to waste time on the works in this room, most of which, I saw from the labels, related to birds and animals.

Pressing the button, I found that the machinery for raising the door no longer functioned. This did not delay me long, for, seizing the central handle, I pulled until something snapped and the door went halfway up and jammed. Ducking beneath, I found myself in a long dark corridor.

Feeling my way along, I found another door, and, on my pressing the button, it slid silently upwards. Through the elliptical opening I saw stacks of wire coils and a number of reading machines in as perfect order as if they had been left but yesterday. It was a storehouse of knowledge of the science of chemistry, but of more interest to me was a plan of the building on the wall near the door. The room devoted to atoms and atomic power was on the other side of the corridor, three doors away.

In a few seconds I was there, taking down coils at random, and glancing through the titles and the brief summary of the contents on the labels. There was a reading machine near the door, and a coil had been placed on the spool and the end threaded through, ready to be heard. It was as though whoever had been last there, probably generations before, had left it to be seen by the man who followed him. I felt as though a hand from the past, in this dark, silent house of the dead, were guiding me to the switch. Fearfully I glanced around as I furtively examined the coil.

Near the start the wire had been cut, and a piece of wire about a yard long had been cunningly interpolated. Who would thus disfigure a complete work of science by adding an unauthorized frontispiece? Gingerly, I pressed the switch.

Hearing a grunt behind me, I spun round; but it was only a protest from the machinery at having its age-long rest disturbed. After that, it worked without a hitch. Marvelous were the machines of the ancients.

The screen lit up, but no picture showed thereon. Only a voice came from the sounding-board: a whispering voice, dry and hoarse, as though the speaker, even as I, went in fear of discovery.

"To all genuine seekers after knowledge, if any such be left upon earth: Here, sooner or later, must you come, maybe secretly, as I have come, maybe openly in some wiser day. God grant that it be the latter. Only in this way can I leave a message for you that the enemies of the light will not discover and destroy. To you, I say: 'Find the true South Pole of the earth, and much that is mystery shall be explained to you.'"

● Then the join was reached. A man's face appeared on the screen, and another voice began some preliminary remarks on the subject of the work. "Secrets of the Moon," it was called. A strange title for a scientific work.

A longing for safety came to me. I now regretted my rash enterprise. I tip-toed back to my plane, half expecting to find it gone, or a guard mounted over it; but it was as I had left it. Trembling, I climbed up in it. Nothing in sight from the roof. I pulled the lever and shot rashly upwards.

Immediately I realized my mistake: as I climbed I came into full view of a police plane that had been hidden behind a peak. They could not have seen me come out of the library, but must know that I had been near. With a half-formed idea that out of sight is out of mind, I raced for home.

Should I tell father of my escapade? I had great faith in my father, whom I regarded as a comrade and friend. My only punishment would be a word of reproof. Finally, with much fumbling and stammering, I told him all.

"Are you sure you were not seen?" he asked, gravely, at last. He had gone very pale.

"Quite sure, dad," I lied, for my courage had failed when it came to telling him about the police plane.

"I hope not," he said, slowly shaking his head, "if you are found out, the punishment is death."

● At that moment the radio showed the red light of an imperative call from police headquarters. The world seemed to crash about my ears, and I cursed that police plane from the bottom of my heart.

Giving me a quick glance of warning, father switched on. The coarse features of the police chief showed on the screen.

"Garlen Pollard," began the official, "the routine examination of the forbidden building was made with W rays this afternoon, and fresh footmarks were found on the floors. Several doors were open. Your son, Hasteen, was seen leaving the vicinity shortly before. You will deliver him at once to the official plane that is being dispatched to bring him here for examination."

A cold hand closed on my heart. Nothing could be hidden from the searching gaze of the authorities; mercy was an unknown quantity to these officials.

Not a muscle moved on my father's strong, lean face, every detail of which was visible to the searching eyes of the policeman.

"My son has not been out of my sight since the breakfast hour," he declared.

"You will hand him over to the plane," repeated the voice.

"I will bring him to meet it," replied father, switching off.

Rising, he beckoned to me to follow, and we went in silence to where his plane, *Amphibia*, as he called it, rested in its shelter. I could not blame him for handing me over, for resistance to the authorities was unheard-of, and escape impossible. But as he started off he gripped my hand in a strong, warm grip without a glance in my direction: I felt a fresh wave of confidence in this silent, reserved man whose child I was.

The plane, *Amphibia*, was of father's own design, and had an airtight body shaped like a stout, fat-bellied fish. There were lifting propellers at the top and driving propellers behind. Along the sides were wings shaped like the closed wings of a bird. It could travel at great

speed, though not so fast as the police machines, and could go up to the highest limits of the stratosphere. The reason for its name was the fact that, with its lifting vanes idle, it would run along the ground; or, with the wheels folded away, serve as a speedy motor boat. It could even be used as a motor sleigh on the snows of mountain tops or pleasure resorts.

In an incredibly short space of time we were advancing to meet the police plane. "You will hand the prisoner over to us," they barked, through our receiving apparatus.

"Coming," said father laconically, guiding the plane with his left hand. Then I saw something that thrilled me with a new fear. His right hand, hidden from prying rays behind a solid block of metal, held a square black object with a handle and a pointer. It was one of the ebonite boxes that could contain an enormous amount of power, and I saw that the indicator was set for disintegrator rays.

Even in my fear I realized that father was right: it was better to die in a hopeless fight than to face torture in the hands of the authorities; for his attempt to shield me had inevitably involved him in my fate, particularly as the police had long been seeking an excuse to do away with him.

"Preparing to attach myself alongside," father told them, zooming about with a clumsiness foreign to his usual precise skill. The object of his maneuvers was soon revealed for, directly we were out of sight of any windows, and therefore temporarily safe from attacking rays, his hand shot out. In an instant the main driving propeller of the police plane was in fragments: the ship fell away spinning sickeningly.

We shot upwards, zig-zagging in all directions. Below us the crippled ship was righted and feebly tried to follow. Father glanced without a word or change of expression at a hole in our wing, torn there by a ray that must have missed finishing us by inches. In a few moments more we were among the clouds, the first fugitives to escape from the police since the legendary criminals and heroes of the past.

● Our troubles, however, were by no means at an end; for, while we had disabled the only official plane in active commission in our district, others could be started as soon as the men were got together. A few minutes would suffice to warn other districts of our flight. We went up to the rarefied air of the highest altitudes, where we were safest, alike, from the long infra-red rays that penetrate fog and mist, and from short X and Y rays that penetrate material objects. It was freezingly cold, but we could have our heating apparatus only at half strength or it would serve to pick us out.

"Where are we going, dad?" I asked, breaking a long silence.

"South Pole," he replied, as though it were next door. He was making for the opposite end of our world in response to the message from the past I had heard in the forbidden building.

We were above the artificial suns, globes over a mile wide, radiant on the underside and black above. One of them turned silently over. Father permitted his first exclamation to escape him, and avoided it as widely as possible. The people below were being deprived of heat and light in an endeavor to find us.

A police plane shot up, searching the sky with great beams. Then my father showed his cunning. He kept between the plane and the light, in the full power of the well-nigh intolerable heat of one of the globes: the one place where we could not be seen. The plane passed on.

Our radio carried to us the messages sent out by the police telling of our flight. Then an urgent public proclamation was broadcast that we ignored, until we realized its startling and terrible import. Briefly, it stated that the negotiations between the North and the South, concerning the apportionment of power, had broken down: the hemispheres were at war. That meant we had thousands of miles of hostile territory to cross on our way to the pole.

For a while it helped us: for the forces of the government were too busily engaged to trouble greatly about us. We ceased dodging about, and made straight for the frontier, in a mad attempt to cross it before the great protective screens were properly in action. Oceans and continents raced by beneath. Crashings and boomings sounded from the East; and, daringly switching on our vision screens, we saw a great town being reduced to dust by an enemy fleet.

Of course, both sides would strain every nerve to strike the first blow: hundreds must have been slain before they even knew they were at war. The long mottled bodies of the planes were like a group of deadly snakes rushing in to strike a blow, then dashing out again. Occasionally a lucky shot would catch a raiding vessel before it could escape, but steadily the towns were being destroyed. In the surrounding countryside no human life remained, for the land was bathed in deep, inaudible sound waves that caused certain bones in the skull to vibrate, snap, and cut into the brain.

Abruptly, the defensive screen of the town broke down, then a few seconds sufficed to annihilate its inhabitants, and the fleet went on to the next town. The northern fleet was probably carrying out similar operations in the South, for the people of our planet had thoroughly learned the first principle of war, dimly realized by earth in the little war of 1914-18, and nearly carried to its logical conclusion in the terrific holocaust of 1950-51.

That first principle is, that you can do far more damage to an enemy's morale by striking at his helpless civilian population than you can by destroying his army or navy. We execrate our late antagonists for the brutality of the poison gas attacks that wiped out half America in the fall of 1950, but that simply meant that our opponents were the first to realize that war is simply mass murder, and the first to carry out that mass murder with the greatest possible efficiency.

CHAPTER IV

Stranded!

● Up, up we went, to the atmospheric ceiling, our atomic heater, now in full reckless blast, making us fairly comfortable. Straight ahead showed a faint pinkish haze that was the five-mile wide electronic barrier of the frontier. My heart fell, for nothing could pass that wall but a fleet with terrific defensive power at its command, and prepared to lose a third of its number. As soon as we entered it we would be shown on the screens

of both sides; and, we being a civil plane crossing the frontier against the rules of war, both sides would instantly bathe the whole area with brain-destroying vibrations.

Father set his teeth and tore at that impregnable barrier at his top speed: in earth terms I think it would be about 600 miles an hour. In the dim light reflected from his instrument board, I saw that his lips were drawn back, and that his eyes glowed with insane ferocity. I knew that the passionate, tempestuous nature of this outwardly quiet man was capable of the most unreasoning acts in fits of ungovernable fury. Rumours that had reached me regarding his sanity recurred and caused me profound anxiety.

Straight ahead glowed that pale pink haze. Father swerved neither to the right nor to the left, but turned slightly upwards. Was it possible to go further up? It was, but only for a while, for our velocity carried us right out of the atmosphere like a fish leaping out of water.

It was an invention of genius, of a wonderfully expert airman, an idea that offered one chance in a thousand of escape. I looked out at the surface of the atmosphere beneath, for I saw that the air does not gradually become more and more attenuated until a vacuum is reached, but, at a certain point there comes a definite break, a distinct surface.

Seen from above it was like the faintest possible ghost of a sea, with humps and hollows and slow moving waves many miles in height. Where we had left it, a huge splash was forming, exactly like a splash in water seen in a slow motion camera.

We were dropping again, and I saw that our desperate leap would carry us scarce a quarter of the distance across the barrier. We struck the surface. To my surprise, exceedingly rarefied as that surface was, more tenuous than what often passes for a vacuum on the ground, there was a distinct shock. We darted up again like a flat stone skimming the surface of a lake. The watchers must have been puzzled by the black marks that appeared, momentarily, on their screens.

Again that sea of air rose to meet us; again it dropped away. All the time we were gaining distance. At last we could keep it up no longer, but now the pink haze was behind us, and we were met by no death-dealing vibrations. Father's terrific gamble had come off: we were in enemy territory.

He turned to me, his face dripping with perspiration. "Pitch and toss with death," he shouted, slapping my back, "pitch and toss with death, my boy! Here, you take the damn thing for a bit. I've had enough." Switching the heat half off, he lay down and went to sleep.

● Alone in control of the ship, I flew over the enemy soil. I cut down the speed to about 200 miles an hour, for I reasoned that the less power I used the less magnetic disturbance we would cause, and the less likely we were to be detected. As much as possible I kept over the oceans.

When I feared that we might be seen I resorted to the trick father had shown me of skimming the atmosphere: it was an exhilarating sport, but I could not make the prodigious speed we had made in passing the electronic barrier. Many a time I was on the point of calling father, but I won my way without detection for thousands of miles.

At last I had to wake him, for a fleet was following and rapidly overhauling us at our utmost speed. He grunted and took over the controls. But we could not equal the speed of those ships, and soon we must be overtaken. He realized this, for he cut down our speed and hid behind one of the artificial suns.

This was futile, for soon they would be above, below and all round us; but again I underestimated the resourcefulness of my father. Soon he found what he was looking for, the door in the side of the globe through which entry could be made in the rare event of the internal machinery requiring attention. In a trice we were within, nestling among the mechanism. Here, though the X and Y rays would peer through the walls, what would appear to be an extra piece of machinery stood a good chance of escaping detection.

Getting out of our vessel, we threaded our way through dynamos, valves, electromagnets and much apparatus whose purpose was a mystery to me. Our disintegrator rays made a slit in the side of the globe, through which we watched the advancing fleet.

A few moments' examination showed it to be composed of ships from the North racing across the enemy country at their utmost speed. In their wake followed a great belt of darkness extending right across the sky; and I thought at first that they fled from some frightful weapon of destruction, some terrible new engine of death. Then I saw them come upon one of the artificial suns. It splintered and crackled as they focussed their rays on it: the light went out, and, as the huge store of energy within was released, it exploded with a blinding flash of light and a terrific detonation. Our own globe was set rocking so that it broke away from its position over the magnetic clamp in the ground below; but gradually the attraction reasserted itself, and it came back.

I was thunderstruck at this monstrous act of vandalism. The replacing of one of these globes would, in the inadequate state of our mechanical knowledge, take more than a dozen generations. In the meantime the snow and ice of eternal night would seize in relentless grip the land and seas beneath. Yet the act was perfectly consistent with the object of the war: the fewer globes either side had, the less power they would require, and the more there would be for the other. It was a fight between the hemispheres for the means of existence, and was being waged utterly without mercy. Probably southern ships were doing the same in the North, and soon a narrow band of people at the naturally temperate equator would be the only survivors. They would be, I reflected bitterly, nearly all soldiers.

While I was thinking thus the fleet was advancing on us, and the globe we were in was the next in its path. It now seemed to be by no means the haven of refuge it had been, and I thought an explosion, like the one that had shivered the last, would be a very unpleasant thing at close quarters.

Father called sharply, and I got into our ship beside him. Together we waited for the enemy fleet to attack.

● Now I noticed a curious fact. I suppose the human mind has a limited capacity for terror, and I had been through so much that the limit of fear had been

passed. As we sat there, absolutely helpless, with no possible means of escape from the approaching ships, I was not the slightest bit afraid. I did not fear the speeding vessels, nor their blasting rays, nor the crashings and flying fragments that would presently make this dim-lit place, silent—save for a low hum that pervaded every corner—into an inferno of twisted metal. I seemed to be a remote, indifferent being, calmly watching these two as they sat there awaiting death.

Father now made one of his rare long speeches. "Son," he said, "it seems that we are about to journey into the unknown together; but I still have one more plan up my sleeve before we finally give in, one more card for the last trick, though I fear Fate, herself, holds the ace. If it fails, at least death will be swift. Strap yourself in." Of course, I paraphrase his remarks.

His words gave me hope, and I was surprised to find that, while I had no hope, I was calm; but, when hope returned, I was afraid.

With a loud report a large section of the side of the globe blew off. At the same moment, father pulled his lever. Eager as a greyhound, the little machine leapt from its resting place straight at the side of the globe. I held my breath for the collision, but the sides were as thin as paper, and we tore through with but a slight shock. In the crashing destruction of the globe the little noise, we made, must have passed unnoticed.

The engine stopped, and the plane made a sickening plunge downwards, spinning like a top. I was turned upsidedown, flung sideways, backwards, to the right, to the left, and rendered intolerably sick and giddy.

"The plan has failed!" I thought. I had no means of knowing whether father was alive or dead; and it was impossible for me to get out of my straps and reach the instrument board. The waves of a hungry sea reached up for us, and I knew that the impact, at this speed, would smash our machine to splinters.

Unexpected sideway lurches added to my distress; then I saw that father was at the instrument board, fighting to check that awful spin. Suddenly the whole world was plunged into darkness, the life-giving globe blew up, and the attacking ships, little streaks of vengeful fire in the dark, passed on to continue their work of destruction. The fall of our vessel had not been noticed in the rain of fragments from the broken globe.

We struck the water with a splash, and I was startled, for I had not thought it so close.

. . . . . .

"You were tired out, and you've had a good sleep," said my father's calm voice. I rose from the couch, on which he had stretched me, and felt my bruises, which I had not been aware of when I received them, but which were very painful now that nature was trying to repair the damage.

In a very pale grey light we floated on a mill-pond sea, above which there blew not a breath of air. It seemed like the dawn of creation, before land rose above the waters, before anything moved. A very distant sun, just above the horizon, gave just enough light to enable us to see how helpless and alone we were; but provided no heat. In the opposite direction an aurora borealis, brighter than any I have seen on earth, showed the destination we might reach, if at all, as corpses. It was the South Pole we had foolishly set out for, in response to a probably deceitful voice from the past. Nothing could be there but the ice and snow that had always held the region in undisputed possession.

Father was a man who never gave up, but I saw by his face that a black despair, he would not admit, had settled on his heart. I did not need to be told that *Amphibia* would never fly again: the left wing was gone and the main lifting propeller had broken off in our escape from the globe. The outside temperature was dropping, and would soon be at freezing point. In our scant clothing we could not long survive outside of the atomic heated cabin.

He started one of the remaining propellers, and set us bowling along the still water. The remaining wing dragged in the water, and caused us to travel in circles, so father went outside and cut it away. "Freezing cold out there," he observed on his return, pouring himself out a hot drink.

CHAPTER V

The Isotope Men

We were now able to attain a considerable speed, thanks to our power and to the lightness of our vessel, which nearly lifted itself out of the water. The sun went down, but we took it in turn to watch, keeping a beam of light pointed ahead.

In the morning, we were forcing our way through a thin film of ice. The way we had come showed as a long black path, and the ripples of our passage could be followed for nearly a mile.

Grey ghost of day succeeded grey ghost of day. Snow sank softly down, covering the most dreary view that ever was, to the depth of about a foot; and always the cold, bright aurora beckoned us on. The white flakes fell straight in that motionless air as though reverently covering a dead earth in her shroud.

Presently, I thought, the thickening ice-sheet must hold us fast; but when this danger seemed near, father started a lifting propeller, and we jumped out and sped on our smooth underside over the snow. Nothing like our weird journey would be possible on earth, but our world was without tides, and even the winds, produced by artificially varied temperatures, came no more; so that Nature was extremely kind, save for the steadily increasing cold.

Days followed each other like pale phantoms, dream days. The sky was ever cloudless, and the stars always visible.

At last, came the first real incident since we struck the water. Before us rose a sheer wall of ice. The ice over which we had run, until now, was but a few days old; but this was the beginning of the great polar ice-sheet that was as old as many of the rocks of the globe themselves. Beyond the wall the surface was tumbled and broken by the stresses and strains of ages.

My dauntless father found a ravine, where once a glacier had flowed, and sped up it. We began our much more difficult journey across the tumbled ice, past crevasses and mounds and round sheer cliffs. White-furred animals lay frozen to death. Our speed was much reduced, and we used our searchlight day and night.

At last, the catastrophe, we had avoided by inches a hundred times, occurred. I was in charge when a crack

appeared ahead that had been imperceptible until we were right on it. There was no time to turn: I switched on all the available lifting power, but struck the opposite side: *Amphibia* dipped her nose and settled into an everlasting resting place. She sank too deep to allow any hope of melting or blasting her way out: even my resourceful father could not get her to the surface again.

"Beaten, when nearly at our goal," he remarked, hopelessly. "If we had but warm clothing we might finish our journey on foot, but as it is, ten minutes out there would freeze us."

Sunken in apathy, neither of us spoke for hours. At last an idea struck me.

"If we could find one of those dead animals," I ventured, "the skin might provide us with covering."

"The boy has brains," he admitted. "We will go and see."

As we stepped out, the bitter, intense cold gripped me like a huge hand of ice: each breath was like a sword plunged into my lungs.

Ploughing through deep snow, we found a place, where the wall of the crevasse was scalable, and we clambered up to survey the desolate landscape. No dead furry body, whose protection we might steal, was visible on the tumbled expanse.

But when we looked to the north, on the opposite side of the crack, we saw something that astonished us. A great oval body, obviously a ship, lay, green and gold, on the distant ice. At first, I thought it was hallucination, but I saw that father, too, was looking that way. I shouted and waved my arms, while he, having a better idea, signalled with a light beam from his handpower box. Response was almost immediate: the ship rose gently as a soap-bubble, and drifted to us.

If this were rescue coming it would have to be quick to do us any good, for, already, a dangerous numbness was creeping over my limbs. Yet, who was likely to rescue us? To half the world we were fugitives: to the other half, enemies. Of one thing I was sure: that oval ship was of a pattern never before seen on earth.

● It came to a stop before us, precariously tilted on the rough ground. Through round windows, men of calm, impassive features looked at us, and their clothing was simple but exceedingly strange, like the clothes worn by people in pictures of long ago.

A round door opened, and a deep voice uttered the one word, "Enter!" It was probably a trap, but death would claim us very soon now, if we remained where we were, and we had no choice. I stepped in, half expecting the whole mirage to vanish. But my feet met a floor of some soft, rubbery material, and the air seemed very hot after that outside. We were in a small, empty room that was obviously an air-lock. Abruptly my legs crumpled, and I fell, still conscious, to the floor. Father knelt and chafed my arms and legs.

Nothing happened for a while, but a sort of thermometer on the wall showed that the temperature was slowly rising from the freezing point. Obviously, the inmates feared that too sudden heat might be harmful to us.

When the temperature was about that of a hot summer's day in New York, the door, giving access to the interior of the vessel, opened, and a man stepped slowly through. I noted, as a curious fact, that, whereas father's feet made little impression on the floor, the man's feet sank into it, making deep footprints that slowly filled in, when he had passed. Yet the stranger was the smaller of the two men.

With a face, that might have been carved in stone, he advanced and indicated to father that he was to enter the vessel. He bent over and picked me up and carried me in. He staggered as he raised me, as though he found me unexpectedly light.

I had a vague impression of a warm, well-lighted interior, of pictures on the walls, of strange men and of solid blocks of the rubbery material on which they sat. I had an unreasoning conviction that they were friendly to us. The reaction from the stress and strains through which I had passed was overwhelming. I could neither move nor think, but sank into a happy slumber.

My sleep, however, was not one of perfect rest. It was shot through and through with streaks of pain, and I lived, again and again, through every detail of that terrible voyage. I dreamed that hideous monsters were tearing my arms and legs from my body, or chewing my limbs to shreds. All the time I was dimly conscious that I was making a prolonged and desperate struggle for life.

At last, like a ship sailing out of a stormy sea into a smooth harbor, I woke up. Pain still racked my body, but it was nothing to the agonies through which I had passed.

A soft orange light filled a cylindrical room that seemed to be underground. Pictures hung on concave walls, and exotic flowers grew from saucers of soil on the tables.

I lay, naked, on a rubber-like couch that, shaping itself exactly to my body, seemed softer than the softest down. Parallel to my bed was another, on which lay my father, shockingly emaciated. His ribs showed through his skin, his cheeks were sunken, and his eyes, full of fire as ever, glowed out of dark hollows.

"How thin you are!" I cried, and was surprised to find my voice so cracked.

He smiled, a ghastly smile, and observed, "I was thinking how different you, yourself, are, from the chubby boy I used to play with."

Another voice spoke, that of one of our rescuers, seated near our feet.

"You have both been unconscious for many days," said he. "Frost had bitten deep into your vitals when we found you, and you have long been hovering on the brink of death. To aid your recovery, and to prevent you feeling the agony of so much dead flesh coming back to life, we have kept you unconscious. Drink is beside you."

The fluid was like thick soup, palatable and obviously highly nourishing. It must have been drugged, for after drinking, we immediately dozed again.

So, waking only to eat and drink, we passed the earlier part of our convalescence, until we were able to get up and walk a few tottering steps. Men came to see us, and some women. All walked with slow, heavy tread, as though gravity dragged at them fiercely: they bore an air of profound knowledge, and seldom spoke. One man came frequently and stared at us. I had learned to ignore his silent scrutiny when he startled me by speaking. "They may answer questions," he said, and went out.

Our attendant repeated the remark to the next man who entered. If we could answer questions we could also ask some, thought I.

"Where are we?" I demanded.

"In an underground town at the South Pole," came the ready response. "We saw a light approaching, and thought an attack was being made on us. A ship went out to investigate, but the light went out, and they could not discover the cause of it. They reported that, as they were about to return, they found a small vessel wrecked and half buried in snow, and you two, practically naked, wandering about in a temperature that would have been instantly fatal to any of their crew. Were you tired of life?"

Father gave a short account of our adventures, our visitor being very interested in the object of our journey.

"So visiting the building of knowledge is forbidden: approach to the monument to our heroic ancestors is punishable with death." His voice, deep and vibrant with passion, showed the first signs of emotion I had noticed in these phlegmatic people. "I might have known it. So be it. They are not worth our labor to preserve: they, and their world, shall return to cosmic dust."

Our attendant checked his outburst and he apologized. He then went on to explain many things. The message I had heard had been left long ago by a man who risked his life to leave it; so long ago, in fact, that, as generations passed without response, its existence had almost been forgotten.

Our rescuers, who called themselves the Isotope People, were the descendants of the scientists and laborers, who were originally established on the moon, to maintain the supply of power. Life on the moon was much harder than on the planet, and they had retained many mental and physical qualities lost to the main body of the race on the larger globe.

The planetarians had learned to accept as a right the products of the labors of their social inferiors on the satellite: scientists and leaders of thought had tended to drift to the moon. The gulf between the two worlds had widened until the one had almost forgotten the existence of the other. Increasing physical differences came to emphasize the division, for, as the moon grew smaller, it became increasingly charged with exaggerated isotopes: matter having an exceptionally large number of protons and electrons in the nuclei of its atoms. No matter what precautions were taken their own bodies became charged with isotopes that manifested their presence in increasing weight for size: they breathed them in in their air, they ate them in their food, they drank them.

The disadvantages of this state of affairs were twofold. In the first place the fluids of the body tended to solidify readily, making the owner very sensitive to cold: in the second place, if the possessor of an isotope body were exposed to the rays of an atomic power machine, then, should the substance from which the power was being obtained contain any elements that had their counterparts in the human body, the atoms in the body would recognize and absorb the rays: for each element produces and absorbs rays of its own particular band of wavelengths. This led to electrons jumping out of too bulky nuclei, and to new and perhaps dangerous elements appearing in the body.

Stringent precautions had therefore to be taken against exposure to cold or to power rays. To prevent the process going too far they had built this secret city under the eternal ice, where they spent their vacations and returned to normal. No person, not of mature age, was allowed on the moon. And for every period spent there, a period six times as long had to be spent on the earth. Indeed, with the reduction of the size of the satellite, not more than a seventh of their number could conveniently be there at one time. The leader, himself, had spent more than the average proportion of time on the moon, and his body was about twice as heavy as it should be.

It was to relieve their muscles as far as possible of the strain of carrying these weights when exposed to the gravity of the earth that their chairs, couches and floors were composed of the soft, rubber-like composition I had noticed.

CHAPTER VI

The Return

The war, he stated, in response to our query, had resulted in a complete victory for the North. The raiding ships of the South had been destroyed by men hidden in the artificial suns, and using the tremendous power of those bodies to project rays against which nothing could stand. All the southern globes had been destroyed, and ice now covered practically the entire hemisphere.

It seemed that the North had determined on extermination; for all pleading for peace had been ignored, towns were still being destroyed, and survivors were barred out of the North by a wall of vibrations. This inhuman savagery had done more than anything else to convince the isotope people that the time was ripe to come out and leave the planet to its fate.

"How much longer will the power last?" we queried.

"Years yet, but it has grown very hard to obtain, and there is much resentment at our continued slavery to support a people who are not worth it. You see, there is not only the question of keeping up the heat and light of the earth: the great beam of magnetism that holds the moon in place is a continuous drain on our resources.

"Let me explain. Every magnet has a north and a south pole. Like poles of magnets repel each other, unlike poles attract. Our space ships travel through space by focussing a beam of magnetism on the pole of their objective that gives forth magnetism of the opposite polarity: the moon is held in position by a beam of power of the same polarity as the North Pole of the earth.

"When the power fails the moon will fall. Although it is so small now, it is still as heavy as ever, the reduction in bulk being simply due to the greater part of it consisting of extreme-isotopes. Were the mighty prop to fail the fantastically solid and compact body would hurtle down and pass through the crust of the planet as a rifle bullet passes through a sheet of paper."

"Then the planet, the moon, and the whole human race will be destroyed," I cried.

"The planet and the moon, yes; but not the whole human race. We have made preparations against that day: beneath the ice we have constructed huge spacefliers, capable of carrying all our people. There is another planet, the third from the sun, which we are confident is suitable for mankind. At the present it is recovering from the grip of an ice-age."

"But the people," exclaimed father, "who will be left behind. Won't you warn them, and give them a chance to build ships so that some of them, also, may escape?"

The isotope man shrugged. "They have shown themselves unworthy of saving," he responded.

Father began to plead for them. The people were not responsible for the actions of their rulers, he said.

"They have the government they deserve," replied the other, as one who argues with a persistent child, "the people themselves would be the first to rend you for trying to help them. In any event, how would you give them the message? Only the official radios are capable of receiving messages from space, and it is hopeless to try them. Everything from the south is barred out by the electronic barrier."

"It can be done," exclaimed father. "In my own house I have a machine capable of broadcasting to the entire planet. I will return and warn them myself."

"It would be suicide," said the isotope man, "but I will convey your offer to the ruling council at the next meeting. Of course, you cannot be allowed to take any steps until the physician pronounces you fully recovered: but I will undertake that no decisive steps will be taken without your knowledge."

With these words he went.

During the next few days we roamed about the underground, or, rather, under-ice, town. There was not much to describe: it consisted of compartments where the people had their homes, interlacing tunnels, and spherical halls, some of them so huge that one had the illusion of being in the open air, in which public business, work, and recreations were carried on.

The orange light glowed everywhere, and at every corner were maps with black arrows showing one's location at the moment. As one walked in these passages or halls one's reflection walked, upside down, above one, for the ceilings were perfect mirrors designed to reflect back the heat, and avoid melting the ice above.

In the larger of these halls the gigantic space-ships were being completed, operations that involved the use of the tremendous electrical and magnetic forces that produced the brilliant aurora we had followed for so long. In intense white light hundreds of little black figures labored on the mighty hulls, and the air resounded with hissings and thuddings. Accustomed to a world where work was almost unknown, the spectacle of so many men, each contributing his own strenuous efforts to the common pool, impressed me profoundly. It seemed to me that no difficulty could long resist that concentrated, combined endeavour. And I was right: if the human race will but strive together with a common will, there is nothing in nature that will not have to give way in the end.

Once all danger was past our recovery proceeded so rapidly that it seemed but a few days, from when the physician pronounced us able to answer questions, until we were summoned before the Council. Our interview was short. Father repeated his determination to return and warn the people; and the council, after telling us that we were uselessly throwing away our lives, agreed.

"All the space ships are completed," said the leader, "and some of them have already started on their way. Everything essential is aboard the ships that are left, and the planet can be evacuated within an hour. You, accompanied by one volunteer, will take a standard space-flier, size 14, and carry out your mission. When your message has been given, whatever the response, you will leave immediately, supposing you are capable of doing so, in the space-flier for a rendezvous in space where you will find the fleet ready to start the interplanetary flight.

"Should you meet with success, which we doubt, sufficient men will remain to ensure the maintenance of the system for another thirty years, the extreme limit. We shall be watching. If your reception is hostile we shall at once abandon the moon. When the light of the globes goes out you will know there is no time to be lost, but that you must at once start off into space if you do not wish to be left behind. Go!"

I insisted on accompanying him. In spite of his protests I got my way, and we started on that fatal journey together. I carried myself, I fear, with an air of conscious heroism, but it vanished before the matter-of-fact manner of the isotope man who was to be our guide and share our dangers.

Like an ordinary helicopter, we rose until our pilot threw on the magnetic power. Any one who has seen iron filings arrange themselves into curved lines of force round a magnet will understand how, finding one of these lines in the magnetic field of the planet, we were carried in a parabola from the pole we repelled to the one we attracted. A few hours sufficed for this leap through space, then we were settling down in the manner of an ordinary airplane in the North.

After the devastation in the South, it was startling to find the North but little affected. I knew not whether to admire their more effective strategy, or whether to regard their greater preparedness as proof of a premeditated attack. In any case, with a fate as terrible as that of the vanquished, facing the victors, the question was of little moment. That bright-lit, apparently prosperous landscape appeared to me like a bubble liable to burst at any minute, for all-devouring fire and ruin to pour through.

Straight from the clouds we dropped, this being our best chance of avoiding possibly inquisitive aircraft; and the whirring propellers deposited us gently amongst the shrubbery in the garden of our late home. From outside, it appeared undamaged, and it seemed strange that we could not walk in and continue living our lives as we had lived them before my rash visit to the forbidden building.

The house seemed to say sadly, "Within these walls you were born: under this roof you were reared. Come in and I will provide the comfort and security I have always given you." But it lied. Our home was now a place of danger for us.

Stealthily we entered our own home. Once within, the rough hand of officialdom was apparent. The place had been ransacked. Pictures had been torn down, beautiful ornaments wantonly smashed: everything, likely to arouse the covetousness of rough men, was gone.

Strangely enough, the radio apparatus, that had been my father's special pride, was undamaged. Nothing here was likely to interest ignorant marauders. With a grunt of satisfaction father settled himself in front of his instrument board. No time was now to be wasted if we were to give a last warning to a doomed planet before the authorities could stop us. The apparatus responded to his touch, and soon he was ready to broadcast.

I shivered suddenly, and realized that this was highly unusual. The light, also, was less bright than was customary. I wondered whether the power was already beginning to fail, or whether the cold of the South was making itself felt in the North.

Father was speaking, words that must have sounded the wildest ravings to his millions of astonished listeners. His voice was deep, and powerful to an extent I had not thought him capable of. Beside him stood the isotope man, like a grim, motionless statue, thickly wrapped in special heat-retaining clothing against an atmosphere that must have been bitterly cold to him. Both were visible to the whole hemisphere.

CHAPTER VII
Lost in the Void

● "People of the world," cried my father, "rouse yourselves, for doom stares you in the face. Already your heat globes grow dim: your power is failing fast. Ignore it much longer and nothing can save every man, woman and child from fiery destruction."

"Ssssss." It was the police warning to desist.

"There is yet time. With care the power in the moon can be made to last for a generation: time enough for space ships to be built—,"

"Ssssss. This is your last warning."

"In which many of you may escape. But if you show yourselves indifferent, the people of the moon will cease their prodigious labors to keep the failing system going: the moon will fall and—."

"Ssssss. Ssssss. Ssssss," went the police transmitter, drowning, even in the room we were in, every further word he spoke.

The outside sky was thick with airplanes, like wasps from a disturbed nest on a summer's day. The house was surrounded with people, many of whom were shouting, "Shut your ——— mouth!" "Death to the madman!" "Kill the lunatic!"

We might have got away, through a side window, to where our number 14 size space flier was waiting to carry us to the waiting fleet and safety; but father preferred to carry on with his mission to the end. He shut off the machines, stopping that infernal hissing, and stalked to the open window. The isotope man stood stolid beside him, offering no comment, and I appeared at the next window.

"Foolish people," he went on, "I come to save you. Unless you act, and act at once, fate will be upon you in a few hours. Already your light grows dim."

I thrilled with admiration at the spectacle of these two isolated men thus facing, unarmed, the angry mob in which not a voice was raised in their favor. But the average man who hides himself in the crowd has an instinctive hatred of the man who stands alone: one such can usually be found to strike a blow at helpless, solitary figures.

It was so now: some one outside laughed an insane laugh, I saw a hand with a black object appear above the heads, and a disintegrator ray stabbed out. Where the two men had been was a great hole from which the timber and masonry had fallen. A terrible scream was the last I ever heard from my father: the isotope man was as silent in death as he had been in life.

I stood on the edge of that hole, of that hideous wound in the side of our house, stunned by the shock. I could not realize that my father was dead: the very suddenness of the blow prevented me feeling any sorrow at the time. Years after, I was to realize that death comes to us all, and father had at least died in the way he would have chosen.

Like a man in a trance I was conscious of people round me, of being jeered at and asked questions. Then soldiers came, but I cared not what they did to me. At last the pain of their arm twisting and other torture forced me to attend to them. They were asking questions about our "confederates," questions that I could not answer, for I was not sure whether the people at the Pole were ready to resist an attack.

"Take the stubborn lout to headquarters," growled an officer, "hypnotic drugs will make him speak."

At that moment soldiers and house vanished from view. A complete blackness had fallen on everything. Finding myself released, I turned round to see one of the artificial suns glowing red in the sky for a few seconds: then it had gone.

Somebody screamed in terror, "The power has failed! The power has failed!" His rushing feet, stumbling in his haste to get out of the house, resounded through an intense stillness.

Panic followed. Forgetting me, the soldiers sought only to get away, though where they could go I knew not. In a few minutes I was alone in my ruined home with the bodies of my father and his friend.

Tears streaming silently down my cheeks, I searched for them with a light beam. All I found was a heap of rubble, beneath which, what was left of them probably lay. There was ample evidence they could not have survived.

Caring not what happened, I collected warm coverings and tried to sleep. Later I rose and went in search of more coverings.

● When I awoke, shivering, I found a small sun, the natural one, low in the heavens, sneering at me as if in mockery of day. It shone on a world already changed. Flowers and plants had blackened and wilted at the touch of frost, the ground was white with snow and the lake had a film of ice.

A longing to get away from this place seized me: from this place with its many tender associations that were now so painful. Finding the space-flier among the bushes, I got in and gave the starting handle such a savage jerk that the vessel shot upwards with a force that threw me backwards.

The controls of the flying machine were sufficiently similar to those I had been accustomed to and presented few difficulties to me. I checked the upward rush, levelled her out, and set her racing forward. She was tearing north, a useless direction, but what did it matter?

I let her run for hours, not even keeping a look-out. Suddenly a tremendous glare of white light glowed ahead, as though the earth had opened and gushed forth a fountain of flame.

The white flare passed, to give place to a leaping red glow. Abruptly the explanation rushed into my mind with crushing force. The moon had fallen!

A terrific wave of air-pressure struck my little craft, making it spin over and over. Then it began to rain stones, earth and trees, objects that had been torn up and thrown high in the air by the shock in its passage, then

left behind. Comparative calm followed, and I looked down to see that not a house or tree remained standing. No vessel but my own, rigidly constructed by the isotope people, could have lived in the air. Hills had been flattened out or built up, altering the contour of the land: seas had left their beds. Angry rumbles sounded from below, and wide cracks in the ground belched forth fire and smoke.

Fine ashes filled the air. A thunderstorm burst and rain poured down. The lightning showed an unfamiliar landscape, white in places and black in others, and turned the glowing red spots into columns of smoke.

I went up to get above the storm. It was just that the North should meet a fate as terrible as they had wreaked on the South, even though I was inevitably involved in it. No matter how high I went, I was buffeted by winds that threatened to start a crack in my sides and let out the air. The atmosphere here was, of course, much too rare to breathe. Peace was to be found only beyond the atmosphere.

Fumbling with the unfamiliar knobs and levers, I presently succeeded in getting the repelling ray in operation. The space-flier jumped out of the atmosphere, following a line of force in the planet's magnetic field. That, however, would take me only to the opposite pole, and there was no object in that.

Size number 14 vessels, designed for journeys to and from the moon, had magnetic rays of an effective radius of a few hundred thousand miles only; and now there was no moon for me to reach up to, even had I known how to start an interplanetary flight.

Beside me was an instrument board with the words "Destination Finder," bearing various handles and knobs, the largest knob having a curved, double-headed arrow above it, and the words, "To broaden," on the left, "To focus," on the right. When I switched on, a circular map of stars appeared on a black screen.

Correctly, I surmised this to be a view of that part of the sky included in the sweep of the ray. All the bodies shown were much too far away to aid me; but in one place appeared a bright red spot that I could not see on looking out of the window. Did that mean that I had found an object out in space that my ray was capable of acting on?

● Turning the handles to keep the red spot always within the circle, I began to focus the ray. The stars in the circle seemed to come towards me, the outer ones disappearing beyond its edge.

I began to feel as though gravity were tugging me upwards, proving that I was forcing myself away from my objective. Switching off, I changed the polarity of my beam from South to North, and switched on again. The ship and the whole universe seemed to swing upside-down, the planet now below me and my objective above.

The planet dropped away with ever increasing speed as I shot into the void. Closer and closer came my target, until I saw that it was none other than a space-ship of the isotope people, probably at rendezvous spoken of.

Despairingly, I changed the polarity of the beam to repel the ship from me.

The ship loomed gigantic in the heavens, rushing toward me. Then I saw, with immense relief, that I was going to miss it: at terrific speed I hurtled past and rushed on into space.

A fresh problem confronted me: that of turning round in space, or of training my beam through the underside of the vessel. Though I studied the levers and dials a hundred times, none of them offered any help, and all the time I was helplessly hurtling on into the void. In despair I tried this lever and that, until, in my ignorance, I touched something I should have left alone. There was a crackling of sparks, a brief flash of blue flame, and all the machinery stopped and remained dead.

All around were the cold, distant stars, among which, the disc, that was the world I had left, stared at me mockingly. Ages passed, and I could do nothing. I seemed to hang, motionless and weightless, in an infinite, empty space.

Not entirely weightless. After a very long time I found I had some weight, just a few pounds, and tended to fall towards that part of the vessel I called the "top." That meant some exterior force was acting on the vessel; and I concluded I was still chained by gravity to the planet I had left, and was beginning to fall back onto it.

My weight increased, and I realized it could not be gravity that was thus acting on my vessel but not on my body. At the same time I saw that I would not collide with the planet, but would travel in an orbit of my own.

My weight decreased to nothing: but now I saw something that sent me wild with joy. It was the space ship of the isotope people. They had seen me pass, a great magnetic beam had reached out into the void, found me, and was drawing me to safety!

Slower and slower I approached the ship, or, rather, caught up with it, for it was already well under way. I turned to look at the planet we were leaving. A startling thing occurred, a thing I thought was an illusion.

It was like this: One moment the world was there, pale but clear, like our own moon shining in the sky before the sun has set, but smaller; the next moment it was not, and there was nothing but a lot of fragments slowly widening their distance from one another. A frightful explosion had occurred: I had witnessed the end of our world and the formation of the asteroidal belt, that collection of small worlds that circle the sun in the orbit that was once that of our planet, between the paths of Mars and of the mighty Jupiter.

The explanation was that the highly concentrated moon, on meeting the internal fires of the globe, had begun to absorb all the available quanta of energy. As it did so it expanded, until the crust of the planet burst asunder with the strain, with the results I saw.

I boarded the ship safely, and we continued our journey to the distant earth, soon a conspicuous object in the sky, in which the ice of the poles and the warm, fertile country between could be picked out by the naked eye.

I remember little more. Not all the ships reached this earth safely, but some of them must have done so, and the passengers established themselves here. Whether they or their descendants relapsed into savagery, and gave rise to the Cro-Magnons, the first true men whose tools and bones have been found, or whether they found people here before them and were swallowed up in the race, I cannot say. All I can say with certainty is that that boy, Hasteen, became the ancestor of me, Christopher Barlem, and probably, through innumerable lines of descent, of every human being on this earth today.

THE END

(Illustration by Paul)

From above poured a deep purple light shining on a thousand quiet figures seated in black chairs. Here and there on the walls Winters saw little cages in which men tended banks of instrument boards.

THE MAN WHO AWOKE

V—THE ELIXIR

By LAURENCE MANNING

● At last we come to the end of this much-applauded series of adventures of Norman Winters into the future. We come to the final question of what is the ultimate destiny of the human race.

We know that one thing is necessary for such a determination, and that is the immortality of man, the obtaining of an elixir that will keep men perpetually young and able to cope with the problems of life.

In this stimulating end to the adventures of Norman Winters we are carried far away in time and in space to the creation of a new type of life that seems to be original with Mr. Manning. We hope our readers will enjoy this last installment as much as the editors did.

● The spring storm lashed the hillside with a bite and fury it had not held for fifty thousand years. It was May, but the wind struck chill on the ground and the palm trees were in brown ruins—the whole tropical verdure of the Great Lake region was doomed. The cycle of climate had swung around and it had been growing steadily colder for a thousand years, perhaps to presage another ice-age. Under a clump of dead palms some stone ruins showed grey-white and under the fierce wind the water rippled across them like wrinkled silk.

So far as the eye could see the landscape stretched open and deserted. Nothing alive was out in such a storm. But presently one of the white stones moved slightly. Had the ground sunk beneath it a little? But why *now*, why not some other time during the thousands of years the ruins had lain there? Then it moved once more—slowly and definitely. There could be no mistake. It was a slab of rock three feet across and must have weighed two hundred pounds, and suddenly one end sank deep in the earth.

After a moment the whole slab vanished from sight, leaving a deep hole yawning there, down which the rain poured muddily. Up through the black cavity came the head and shoulders of an old man.

The face was white and unkemptly bearded and the hawk's beak of a nose was covered with skin tight-stretched, like that of a mummy. Two piercing gray eyes peered out beneath bushy, overgrown brows and seemed to darken as they looked, as though disappointed at the sight. Two thin hands with nails soiled and broken by much recent digging rested on the edge of the hole and with an enormous expenditure of effort Norman Winters drew himself up and stood on the surface of the ground.

Ten thousand years ago he had gone down under the earth and left a new and thriving city above him. Five thousand years later he had awakened and found ruins in a mad world from which he had quickly retired. Now he had awakened again, eager to see what changes time had wrought. His clothing was ill-adapted to the cold and he drew his tunic of heavy silk closely about him and shivered.

"It might as well be a new world, for all I know about!" he muttered.

Visibility was poor through the driving sheets of rain. To the west rose the hill, to the south stretched the forest with half of the trees showing the brown color of death, and to the east a semi-open country stretching (he knew) to the horizon. On the north lay the troubled waters of that inland sea once called Lake Superior.

"Twenty-five thousand A.D.!" said Winters. "I have to find shelter and people before I starve to death in this wilderness!"

South, east or west? Winters started east, chiefly because the ground was clear and walking thereby made easier. It was impossible to guess the time of day, but he plodded on—weary and sodden—the sharp eyes roving in search of any signs of human habitation. Hour after hour he walked, soaked feet pressing sloppily into the flooded soil at each step, wondering whether he would ever come to anywhere and rather doubting that he would. Darkness overtook him and he made a crude shelter under a fallen palm, whose great dead leaves made a sort of tent at one end of the tree. He ate a handful of concentrated food from his pocket and, protected from the water by a slight knoll on which he lay, slept fitfully until the grey dawn awoke him. Wearily he resumed his plodding progress.

An old man cannot lie in a coma for five thousand years with impunity, even if, upon awakening, he spends a week in bed recuperating and has to have stimulants and nourishing food once made ready for him by the super-medicos of the hundred and fiftieth century. Winters was near exhaustion and his face showed gray instead of white and his breath came in painful gasps. He sat down against a large tree whose leaves still showed green and thought unhappily of his fate.

To come successfully through the long sleep only to die of exposure and starvation (for his food was gone) in an unfriendly world! Where were the people? He dropped off into the easy slumber of age and slept for two hours. He awoke, somewhat refreshed, and set off through the storm, wearily and slowly, only his eyes

were as eager as ever. Winters was the kind of man who persisted in the face of the impossible. True, he was probably going to die. At the same time, here was the future world he had wanted to see—well, look at it as long as you can, thought Winters! Now he crested a slight rise, beyond which the ground sloped away out of sight in the mist. Down he plodded, a pathetic figure, until he too was swallowed up in the driving storm and could be seen no more.

● Ponceon had been working over his germ culture jars all night, while the other biologists slept. It had been that way from the beginning—his work had been the only real labor performed. True, Fastak and Mintal had made valuable suggestions from time to time and old Pondero had helped him now and then with the cell-breeding. But he—Ponceon—was the real experimenter and now that the process seemed near completion he realized that its success was owing almost entirely to his unselfish, painstaking work.

Dawn surprised him still bending to the task and he straightened his back and rubbed it where it ached. He looked through the great vi-glass dome at the dreary world outside and noticed idly the rain still beating down from the gray sky. It did not occur to him to feel sorry for anyone out in the downpour, for why should any human being in this day and age leave his comfortable living-quarters? But he did look at the rain which droned against the dome and so he saw the face.

It was white and whiskered and the nose pressed against the glass heavily, as though its owner could not hold his head up. As he looked, the face disappeared!

"By the Brain!" exclaimed Ponceon. "Was that fish, flesh or fowl? Or was it—could it be too much night work? No . . . I *saw* it, all right! That snarling mouth with *teeth* behind the drawn lips!"

He decided some ape-like animal must be outside and shrugged his shoulders. The glass was thick and outside it was the jungle. Then, as he continued looking, he saw an emaciated human hand clutch at the glass and fall weakly away in a gesture that spoke volumes. Someone needed help, decided Ponceon, and dashed forthwith for the double door (air-sealed) that gave egress to the outside world.

In his haste he had not thought of clothing himself warmly; and after the artificial atmosphere inside he found the storm's blast breathtaking. But it was only a few yards from the doorway to his destination and he hurried. Prone on the ground lay an old man in strange clothing and Ponceon gently raised him in his arms, almost shocked at the lightness of his burden. By the time he got safely inside his clothes were soaked through and his face dripped blearily from the sheeting rain.

The others in the laboratory were not yet awake and, anyway, Ponceon was a competent biologist and needed no help. He carried Winters into his own chamber and stripped off the soggy clothing, to stand a moment in stunned surprise at the sight of that hairy, twentieth century body. But there was no time now for observation. The old man was suffering from exposure and Ponceon rolled him warmly in coverings and laid him on the couch. Then he stepped over to a metal dial face on which appeared eighty-four minute levers.

Thoughtfully he pulled down lever after lever, until seventeen were depressed. In a vertical row beneath each lever were buttons and to the accompaniment of much head-scratching and chin-stroking, he pressed a number of these, correcting and changing the formula as he went along. When he finished he pressed a white button and there was a musical note from behind the wall. Then he set a hand on a clock face and moved a sliding button up on a thermometer dial and, after a last glance at his set-up, pushed a red button.

He waited expectantly for three minutes and then opened a small glass door and removed the chemical he had created. It was a dark grey liquid and quite warm to the touch. Ponceon smelled it gingerly and, nodding approval, carried it over and forced it slowly between Winters' thin blue lips. The effect was almost magical. The old man's pale cheeks showed slight signs of color and the rigid jaw muscles relaxed slowly. His breathing became fuller and stronger and after a minute or two a slight sweat beaded his forehead beneath the shock of white hair.

Ponceon smiled and yawned hugely. He was tired out with his night-long labors and removing his own sodden clothes lay down on another couch and was promptly asleep.

Winters awoke during the following night, a little before dawn. He could not imagine where he was, but the bed and the warm coverings were palpable to his touch and he lay there wondering weakly until the window at the end of the room showed morning gray. Then he made out dim details—a laboratory fixture beside the window, a couch on the other side of the room and a strip of storm-drenched jungle outside. He rather thought the other couch was occupied, but it was too dark to make certain and he was too tired and weak to bother. He fell asleep again.

When he awoke once more, it was to look into the mahogany-brown face of a young man who stood over him with a glass in one hand. For an instant they gazed at each other, these two. The face he saw was a kindly one and marked with the signs of energy and intelligence. The young man smiled and showed a neat half circle of pink and white gum nails between the clean-cut lips.

"Who—and what—are you?"

"I am called Winters and I am—well, a traveller of sorts."

"Then you *are* human! I wasn't even sure of that! You have teeth and hair grows on your skin!"

"Do you know anything of the history of the human race?"

"Yes . . . some. But what . . . "

"Twenty-three thousand years ago, when I was born, all men looked like me."

"What are you saying! Twenty-three thousand years ago!"

"Yes. My story was well known the last time I visited the surface of the world. That was only five thousand years ago."

"Why, of course! Now I remember something . . . where was it? . . . I've forgotten, but no matter. I thought it a myth. Was it not you who was supposed to have retired into a cave beneath the earth and to have slept under drugs. The legend has it that you twice saved the world from extinction—once by destroying the Brain and again by leading the great Exodus from the City of Sleep. Can the story really be true?"

"It is true—more or less. But how did I get here? I remember walking for days on end through the storm and then . . . here I am, snugly in bed!"

● Ponceon smiled down at the old man and related how he had brought him in, unconscious. "You have had a narrow escape," he added, "And . . . it has weakened you seriously. I am afraid your travels into the future are over, Winters!"

He held the glass to Winters' lips. "This will strengthen you," he said and added: "What an extraordinary thing it is to have the mythical Winters come to life in this laboratory!"

"Why *this* laboratory?" asked Winters, choking over his drink—which he found breath-takingly pungent.

"Because you have found a way to make yourself live thousands of years while we here have just perfected a method for human immortality!"

And at these startling words Winters' age-lined face stiffened and his muscles trembled as though each protoplasmic cell had heard the statement separately and strained with individual hope. His face whitened and he rose slowly on one elbow to stare at his host. He must have heard the word wrong. "Immortality!" he whispered, and suddenly realized how old and tired he was—how weary of the things of life. A vision of the world of his youth rose before his eyes in a surge of nostalgia and he saw faces dead for thousands of years and thought of old, forgotten ambitions and hopes, a world-full of them, that had died with their disillusioned owners. Tears filled his eyes.

Ponceon was smiling at him. "We have been working on the problem for centuries and the four of us here have finally succeeded in overcoming the last obstacle. Now (he straightened his shoulders proudly) we shall *march*—we humans!"

"But how horrible!" said Winters. "How terrible to continue living—weary and old!"

"Old? Not at all. When you are stronger I will show you and explain. But sleep now."

Ponceon left the room and proceeded to the laboratory where an elderly man of huge girth greeted him enthusiastically. His face was lined with age and his hair white with many winters. "Pondero!" exclaimed the young man, "You will never guess who the stranger is! *He's Winters, the* legendary time-traveller!" Two young men crowded in from the next room at his words and before an astonished audience Ponceon repeated his story.

"We must make him young again—what a chance to try out the full cell-cycle!" said Mintal, his walnut-tinted face glowing with interest.

"We must first finish with old Pondero here," said the lean and cynical Fastak. "What is his record to date, Ponceon, two hundred?"

"Two ten—sixty more cell types to go. Are you ready, Pondero?"

With a grunt the great body lowered itself upon an operating table and the three young men busied themselves preparing for a surgical operation in the region of the head. The odor of anaesthetic filled the room.

Many hours later the three stood beside Winters' bed and discussed him in low voices.

"If we can work with *him*, we can work with *anyone!*"

"It will save going off in the airship to find another subject—it's not easy to find an old man willing to risk his life."

"Suppose this Winters fellow objects?"

"Hmm! In the normal course of things he hasn't much longer to live—I examined him and I know," put in Ponceon.

"Then why not . . . "

Ponceon nodded and beckoned to the others, who stooped and carefully raised the frail figure from the couch and along the corridor to the laboratory. They strapped him upon the operating table and Fastak brought forward a tall rack-stand on rubber wheels. In it were placed, row upon row, two hundred and seventy test tubes, each set in a bath of warm liquid. Mintal was sponging off Winters' body with a disinfectant while Ponceon applied the anaesthetic. Then, all three armed with lancets and a battery of syringes, they set to work. Two hours later Ponceon straightened his back and counted the syringes left in the used test tubes. "Ninety more to go—two thirds of the way through," he announced. "I'll do the brain cells and you two finish the body."

Mintal grunted. "Quick work . . .hope he can stand the shock!"

Fastak was feeling the left lower abdomen. "Something wrong here! Have you the fluoray, Mintal?"

A sort of electric torch was passed to him and he placed one end against the white skin and peered through the other end. "Unbelievable!" he said.

The other two young men dropped their work and hastened to look.

"It's some sort of vestigial organ."

Ponceon walked over to a bank of buttons on the wall and began pushing one after another, gazing intently at the wall beside him as he did so. Pictures flashed there in response and presently he found the thing he wanted and studied a portrait for several minutes.

"It is a kind of second stomach which all men used to possess thousands of years ago. It was called appendix vermiform, not that that helps much. I'm afraid this ends our chances."

"Shame to waste all our work."

"Why not cut it out—remove it entirely?"

"Of course! Why not? Try, anyway."

And they set about the performance of an operation once common in the world but long since forgotten. Carefully they scraped away every last vestige of the tissue and continued with the main operation of lancing and injecting cell tissue from the tubes on the rack. Then Mintal came to the tonsils, another portion of the body which had no two hundred and fiftieth century counterpart. The tonsils, also, they removed completely, dissecting out every microscopic particle of them. The teeth they left in place for future consideration.

The sun was setting when the work was complete and Winters was placed on a wheeled cot and trundled along the corridor to a room which was obviously devoted to hospital work. Pondero's great bulk lay quietly on a similar cot and after a careful examination of both patients the three young men left the room, ate their evening meal and fell promptly asleep, worn out with their day's efforts.

CHAPTER II

Three Against Two!

● The sun rose and set three times and brought fair weather—so fine that the three young men found it more pleasant to walk out of doors than remain in the scientifically correct climate of the laboratory. Spring dawned in those three days and leaves sprouted—but it was too late to save the tropical vegetation killed by the severe winter. Birches showed white and maples flowered redly in the swamps while the semi-tropical trees died in brown ruin. It was on this fourth day after the operation that Winters struggled back to consciousness

The old man had come close to the brink of life. He had lain in a world of alternating blankness and phantasy. In his dreams he lived once more in New York of the twentieth century and saw anew those dear familiar faces long dead. His first emotion upon opening sane eyes was one of melancholy for all that had passed. Nevermore could he visit scenes of the old days. Yet, he reflected, what really did it matter to him who was in turn so soon to die? What was it the young biologist had said—that he would make no more time journeys? Well, he still knew nothing of the present age.

He felt stronger, somehow, and a trifle impatient at lying on this cot, inactive. Strange, though, how vigorous he felt! Up he rose and would have dressed but found no clothing, so he drew a sheet over his shoulders and walked to stare through the window at the glorious sunlit sky and the trees sprouting new growth.

He turned suddenly at the sound of someone entering the room. It was a rosy-cheeked youth—far, far too fat—whose dark brown skin glistened as though newly stretched over the plump cheeks. He stared unbelievingly a moment.

"Winters!" he cried at last. "By all that's wonderful! You look like a new man!"

"I'm afraid I don't know you. How do you know my name?"

"Oh—that's right. I am Pondero. I was operated on the same day you were and look at me! I don't feel a day over twenty!"

Winters stared. "Why should you?"

"What are you talking about, man! I am seventy years old . . . but you *don't know!* Oh, this is glorious! No one has told you about your operation?"

"*My* operation?"

But his acquaintance had rushed from the room waving his hands wildly above his head and Winters was still staring at the door when he returned accompanied by Ponceon, Fastak and Mintal. Pondero carried a mirror.

"Look at yourself, Winters!" he cried as he thrust it in his hands.

And Winters looked.

He saw the face he had almost forgotten—the face of himself as a young man. The nose was fleshier—the eye brighter and, somehow, changed. Here and there a few lines remained—the marks of experience never to be effaced. Unbelieving, he gazed at the darkened hair, the plump neck and felt the firm rounded muscles on his arms. He looked up wonderingly at four amused faces. A wild thrill of hope—so vague that he could scarcely define it—surged through him. What had Ponceon said about *immortality?* He licked his dry lips.

"Is it . . . did you make me . . . immortal?"

Ponceon laughed aloud.

"Better than that, Winters, we made you *young!*"

"But how? What possible means could you employ?"

"It is simple. Even in your day it would have been simple—tedious perhaps, to work out, but simple in theory. We hybridized your cells."

"What do you mean?"

"Do you understand biology at all?"

"I did in my own day—what was then known."

"You know then that a race of cells or of any protoplasmic life tends to thin and die out after a certain length of time? It is usually accompanied by—or measured by—the amount of inorganic matter in the physical content. You also know—for it is an ancient principle—that to infuse new life into the old is to cause a new hybrid race to start, a young race with a full life-cycle before it."

Winters frowned reflectively. Then he nodded.

"There are two hundred and seventy species of cells in the body of types sufficiently differentiated to stand systematic classification. In this laboratory we have cultures of every one of them growing in test tubes. All we did to you and to Pondero was to insert in its proper place in your bodies a small particle of each of the two hundred and seventy types of cellular tissue. Nature has done the rest and your entire body is now made up of new, fresh, vigorous cells. I said it was simple!" And he looked smilingly around at his companions.

"Great Heavens! And when we once more become old . . . "

"We do it again!"

Winters pondered the miracle in silence during the next day or two, which Ponceon forced him to spend quietly. He tested his body soberly and with an open mind, in spite of that unmistakeable thrill of youth which coursed through his veins and bade him doubt no further. But he was finally convinced of his rejuvenation and on the next day rose briskly almost at dawn and dressed in the cool silk-like clothes that had been provided for him. Then he ate breakfast from the automatic food purveyor and, full of vigor, entered the laboratory where Ponceon was at work this early over his test tubes. Winters had made up his mind.

"I am going to go back to school," he announced. "You have given me new life and—why there's no reason against it!—I shall proceed to learn everything known to science. Why should I not begin here?"

Ponceon nodded thoughtfully.

"It has all sorts of complications, this business of immortality. If you will give me three or four hours a day help here, I will direct your study of world conditions. We have a good library of records here. But there's a deal of work to be finished on our rejuvenation operation before we can call it complete."

"But it worked on myself and Pondero."

"I know—but you are both still under observation. Perhaps something will go wrong. Your teeth, for instance, should be examined. Perhaps we shall pull them out and try grafting gum-nail tissue on your gums. Also in the laboratory technic we have trouble with the germ culture for several cell types. That will take time and work—a month of it or more."

● And so Winters went back to school and made mistakes and learned much therefrom. In off times he sat by the hour in the library looking and listening to the records—science, history, travelogues and philosophy. At the end of two weeks of study he set down tentatively on paper a brief résumé of the course of human progress during the past fifty centuries.

At his last awakening he had found a world ruled by individualism carried to extremes. Almost no social or racial consciousness had then existed. "Today," he wrote, "a curious fact is apparent. Each man realizes and shares in the united attack by mankind upon the unknown. Each man controls his actions and his efforts toward the common good and refrains from infringing upon his neighbor's liberty. Yet all this is accomplished by education and codes of ethics rather than by laws or compulsion.

"In 20,000 A. D. efforts were ruthlessly self-centered. Shortly thereafter commenced a remarkable period of group action by the weak against the strong. Such a reaction was inevitable, as was its success. By 21,000 A. D. a system of voluntary social agreements had been established and, although there seems to have been a number of individuals who refused to participate, the concerted group action of the majority soon began to bear material advantages. New knowledge and invention was perfected and only shared among the society members and thus, slowly enough in time, the society of individuals came to include the entire human race.

"The agreement was a simple one: to force no man against his will and to never refuse help to any man—these seem to be the two most important and, indeed, the only vital agreements. So sensible and beneficial an arrangement was quickly perfected in its details, leaving no room for laws or complications. By the year 22,000 the social contract was so thoroughly established that the imagination of man had not in five centuries put forth a proposal to change it in any way. Under it science thrived by enormous strides. The population increased steadily until it was found desirable to set up colonies on Mars and Venus which are now fairly densely populated. (Rocket liners ply daily throughout the solar system and accidents are no more prevalent than in the twentieth century upon the seas of the earth. The journey, with atomic power, requires less than two weeks to Mars and about ten days to Venus.)

"The earth has a population of some one billion people. They are housed in congenial groups of anything from two to two thousand and are scattered impartially over the face of the globe, for artificial climate is maintained in all buildings on earth, just as it is on Mars or in the rocket ships that ply through space. There is no barter or trade, for every group has a production machine capable of turning any given raw material into any desired product. There is a sort of trade or exchange in the products of the mind. These are not sold for money or position, of course, but upon the importance of a worker's inventions depends the willingness of others to help him in the event he undertakes a project that requires many assistants."

Here Winters stopped and read over what he had written. Even to put it on paper set him aflame with impatience to go and explore this new and wonderful world. But he had promised to help in the laboratory until the most wonderful of all inventions was perfected. He rose and walked down the corridor.

As he came to the door of the laboratory he heard the sound of voices raised in argument, and stopped to listen. Pondero was speaking: "I should think it would be obvious, Ponceon! Here is our chance to control the destiny of the race for unselfish ends. We can preserve the few noteworthy men of genius from each generation and let the rest of the people live and die as they would naturally do. Think of it, man! After a few thousands of years we should have a population of great minds—with brains actually in the majority! Let us make immortality a reward for great work or for noteworthy accomplishment. Why should we broadcast to the entire world our discovery? What purpose would be served? Unworthy people would be preserved in their unworthiness and bad counsel and wrong principles could never be wiped out from the human mind—even by the great healer, time! It is criminal to do it!"

Fastak and Mintal nodded, convinced.

Ponceon shook his head obstinately. "It sounds plausible," he admitted, "but it must be wrong! Why? For the simple reason that we are committed to refuse help to no man. We shall be asked for information and must not refuse it. Any scheme to help mankind which includes a refusal of such help must—somewhere or somehow—be bad!"

"But there are three of us and we are all determined," put in Mintal with lowering brows, "What do you plan to do about it?"

Winters could feel the tension in the room and stepped softly through the doorway. His mind was made up—he would stick by the man who had saved him—Ponceon. But there were three strong men to be coped with. He silently gave thanks for his young strength so miraculously returned to him and eyed the laboratory equipment speculatively with a view to some possible weapon. On a table nearby was a metal rack support—a strip of steel two feet long and half an inch thick.

"I shall announce our discovery, giving full details, today!"

"You can't do it, Ponceon! I tell you it would be throwing away the greatest opportunity for good ever offered in history!"

"And I say that, as you know, we are bound by the social contract to benefit the world by our work. We cannot pick and choose those whom we are to help!"

"That is just what we shall do!" exclaimed Mintal savagely. "I cannot understand why such a simple thing fails to appeal to you!"

"Simple! Are *you* willing to assume the task of choosing those who are to live forever and those who must die?"

"Why . . . er . . . I wouldn't have to! We could appoint a committee and let their findings be scientifically determined."

"Who would pick the committee?"

● Winters had edged his way unobtrusively over to the table and his right hand, behind his back, had firm hold of the bar of steel. He tried to catch Ponceon's eye, but that young person was heatedly gesturing his argument into the outthrust face of Mintal. Winters had seen plenty of fights in his day and knew what to expect. It could not be very many minutes more, he felt, before a blow was struck and his hand tightened on its

weapon and his eye measured the distance to Pondero's head.

"Stop a moment," cried that huge one. "How far will you go with us in the matter, Ponceon? Will you even hold back your announcement until you are asked by someone for the information? What I mean is, would you be willing to let us go ahead for the present —operating only upon old men of known worth and intelligence? Then if someone hears about the operation and *asks* you, we could grant him the secret on condition that he keep it to himself. Now surely that's not too much to ask!"

"It sounds very plausible, Pondero. But it's just as wrong one way as another."

"But that would not be *refusing* help!"

"It *would* be withholding help, though. The human race is under sentence of death, individually speaking. We live out our lives, waiting for the stroke of fate that shall stop our being. We are in need of help that our lives may be saved. Even as I speak a hundred people die somewhere on the earth. In the next moment another hundred breathe their last. I must save them from that fate and as quickly as I can."

"For the last time, Ponceon, are you going to be sensible about this thing or not? We are three to one against you."

"The majority does not make right, Pondero. I tell you once more that I shall announce our discovery this noon!" And he shook a clenched fist under Pondero's face.

"Besides," put in Winters quietly, "It's three against *two*, if you don't mind! And I have an argument right with me!" He produced his weapon from behind his back.

"An argument!" said Fastak, frowning. "I don't understand."

The others also looked puzzled. Winters began to wonder if he could possibly have overestimated the value of human strength. Perhaps these super-men of the two hundred and fiftieth century had powerful weapons concealed on their persons.

"I shall use this argument of steel on the man who interferes with Ponceon!" he said stoutly.

The four men stared at him in surprise. Then Mintal's satanic face worked furiously and his shoulders moved convulsively. Winters half raised his bar, expecting attack, when Fastak's roar of laughter cut the tension of the room flatly. The other three joined him—even Ponceon. He, indeed, doubled up with mirth, gasped out: "Oh Winters! What a quaint prehistoric notion! Did you—ha, ha!—did you think they were—oh, this will kill me!—you thought they would *strike* me!"

In great confusion of mind and with scarlet cheeks, Winters stammered out his apologies. They paid no attention whatsoever to him. As silently as he had entered he left the laboratory and shut himself up in his room. About noon he came out and went once more to the laboratory, to find the four gathered in front of a flat board set with instruments.

"I warn you, you will regret this, Ponceon!" said Pondero in a severe voice. But Ponceon calmly and steadily completed his preparations and in a clear firm voice proceeded to make the announcement to the world that has since become considered a classic in the annals of human history. And Fastak, Mintal and Pondero stood by frowningly at first, but as the inquiries began to come in over the receiving vi-scope and congratulations and excited applications for treatment filled every recording spool in the laboratory, their brows became smooth and they joined in the thrilling work of humanity's reprieve from its age-old enemy—death.

And now the quiet little laboratory became the scene of mass colonization. Within an hour ten thousand airships had landed and vi-glass housing structures were commencing to rise. By the next day a city of half a million inhabitants was in existence and biologists thronged the laboratories and the great labor began. In all this Winters was left almost entirely to himself and walked about examining and studying people and things with great interest. About the third day he found Fastak and Mintal in a recreation room talking to a group of attractive young girls and they called him in.

"They had turned over all the information needed for such a simple process to competent assistants and were now bent on enjoying a social life for a time," they told him. Why not join them?

"Where is Ponceon?"

"He was here a while back—but he has gone off to live with Mardia a few days. He'll be back tomorrow, perhaps."

Winters was not shocked at the very casual sexual relationship. Indeed, he was quite prepared to find these people of the future taking one biological need as calmly and as sanely as any other. During the course of his life thereafter he contracted many such temporary liaisons himself. The hunger of sex was considered no way different from the hunger for food—except that the latter more frequently interrupted one's regular occupations.

Upon this occasion, however, he was consumed with impatience and eagerness to see the world and mentioned this to Fastak.

That young worthy laughed. "Take an airship," he said. "You'll find many of them outside that belong to no one in particular."

Winters walked to the edge of the city and passed through an air-lock now open due to the mild weather. A young man standing nearby was only too flattered to show the famous Winters how to operate the simple mechanism and assured him that "if anything happened almost anyone would help him out of his troubles."

CHAPTER III

The Search for Infinite

And so the ancient and yet youthful Winters set off for a month's cruise during which he haphazardly circumnavigated the globe. When he was hungry or thirsty a push on a button produced food and drink. When the fuel dial showed red (as it did once over the Indian Ocean) he descended to the surface of the water and pulled the intake lever, whereupon the suction tanks filled themselves with enough brine to keep the atomic motors running powerfully for a month. When he wished to sleep he landed his ship and stretched out on the bunk at the back of the cabin.

He visited some large cities and found everyone excited over the prospect of human immortality. No old people were left anywhere, for these had all proceeded to the laboratory near Lake Superior to restore their youth. But the young men and women were revising their entire mental outlook upon a larger scale. No longer

was there a problem about "what to do with one's life." Life could—barring accidental injuries—continue forever. Therefore each person was proceeding to do whatever he or she happened to want at the moment. He found one man contemplating the idea of breeding dwarf humans and selecting for dwarfness generation after generation until he had beings of microscopic size. "It might take a million years—or ten million," said this calm dreamer. "What difference does time make now?"

On an island in the South Seas he found a small group of five people. They had been doing some desultory research in physics but had abandoned it for the sake of "a few hundred years of loafing under the sun down on the beach."

In western America he found a glass building that housed one dreamy-eyed mathematician. He had abandoned all other tasks for the ethereal joy of producing π to infinity. "Probably you know π to its fifth decimal—3.14159," he told Winters. "It has been carried by previous workers to its ninety-fifth decimal, but the work is time-consuming in the extreme. I have decided to devote eternity to it."

"But supposing it comes out an even number in one of your later calculations?"

His eyes brightened. "It's fascinating to think about, isn't it? Will it ever come out even or is it an absolute prime! That's the question!" And he turned to his figuring in a fury of concentration as Winters left him.

But the real excitement was reserved for his return to the research laboratory. This he found much smaller than it had been, for the work had (very sensibly) been decentralized. A few thousand people remained, however. Ponceon and Pondero welcomed Winters back enthusiastically.

"Now that you have explored this world," said Pondero, "how would you like a cruise of five or six hundred years through space?"

"What do you mean?"

"Why, that the human race is no longer confined to this little solar system. It is many light years' travel to the nearest star and would require hundreds of years in our fastest rocket ships. But *now* the voyage is entirely possible. There are dozens of expeditions planned and Ponceon and I are setting off next week. Want to come?"

"But your food?"

"Food!" exclaimed Ponceon. "Food, water and other necessities are simple. In an airtight test-chamber the processes of life continue without loss of one single milligram of matter. Our machines turn any given substance into any needed article. We merely use matter over and over again. A slight loss is experienced in providing energy—but a few tons of sand will keep us alive for millennia. And as for fuel—another few tons in the atomic repulse engines will give us more speed than we dare use."

Winters accepted enthusiastically and set earnestly to work to learn the rudiments of that science which so miraculously had conquered nature's secrets. A week later he sat bewildered on a steel-sprung seat in a great vi-glass sphere and watched the earth sink rapidly away below him. In a week they landed at the edge of a great glass covered valley on Mars and he marvelled at the earthly, homely appearance of everything inside the glass as contrasted with the red wastes of desolate sand so grotesquely stretched to the horizon under the dark blue Martian sky.

A week of sight-seeing (for Ponceon had never visited Mars) and then the journey was resumed. Day after day slipped by—Ponceon and Pondero finding their chief interest in Winter's earnest struggle to acquire a hundred centuries of learning in one gulp. But after a month had gone by the routine of the ship settled into a dull rut and after a year Winters came to really know something of modern science. There were (they calculated) two hundred years more to be passed before their goal was even approached. So it came about that they all three took a leaf from Winters' personal experience and erected a leadlined chamber in the center of their sphere. They constructed a clock based on light intensities that would awake them whenever they approached a star even remotely.

Then Ponceon prepared drugs and they entered their ray-screened chamber and slept. On through space for a century and a half sped a lifeless globe and at the appointed time they awoke, painfully restored their wasted tissues with days of medication and exercise, and looked out upon the looming brightness of a minor star too dim to have ever been recorded on earthly telescopes. It was in the red dwarf stage and ancient beyond all computation. Eager eyed they swept space for a sight of possible planets, but in vain. Then on past the hoary sun into dayless space once more.

But why attempt the impossible? To describe infinity requires an infinity of time. They slept and awoke and travelled on into this mystic maze of matter we call the Universe. They found one giant star around which swung a huge cheerless world of bare frozen lava—smooth and lifeless. On this they landed and tore ten tons of rocky fuel from an unknown hillside to send them still farther on their way. They slowly grew old with the passing of the years and operated upon each other all one timeless week and became young again. And since no children were born to replace old men and women, the population of the earth remained almost fixed.

● We can no more accompany them upon their interminable travels and adventures, reader, than emulate their adventurous example. Out from earth there shot a thousand such exploration parties every century until one would wonder that space was not filled with them. Presently stars were found which were encircled by habitable planets and on these colonies were formed and this disease of worlds that we call life spread over the surfaces of spatial bodies in all directions from Earth—the great center of infection. Five thousand years passed and many of the same people still lived and pressed their quest into space.

A few were killed in accidents now and then, to be sure, and once in a while a new disease would crop up and some few unfortunates would die before science could find a specific cure. Ten thousand years passed and billions upon billions of men and women thronged the planetary stars. On went life—never ceasing—never satisfied. And with it went Winters, still eager-eyed and impatient as ever to learn one more fact and accomplish one more task.

Once, on a return visit to the earth he saw a face vaguely familiar. Where had he seen that slight form with its almost ebony skin and that apprehensive, yet in-

quisitive, face? Surely it could not be . . . it was Bengue! He greeted him cordially and learned that Bengue had imitated his example and escaped by sleep from the threat of the vengeful Hargry; that he had awakened a few months after Winters had left the Earth and had been actively engaged in breeding experiments ever since. The two spent half a year together and finding that they had nothing of real interest in common, separated by mutual consent.

Word came back to Winters on a planet on the very edge of that void which rims the Universe, that Ponceon —the great discoverer and liberator of Mankind—had been killed in a rocket accident and Winters mourned the passing of an old friend. This was in the year 50,008, two years before the discovery of projection rays. *That* changed the course of history in very fact! To wield power at a distance of a thousand light years! Of course, it used up raw material at a wholesale rate, but it gave these insignificant human animals such a Godlike sense of power to be able to juggle with the very stars in their courses. And the damage done was not—in comparison to the scale of cosmos—more than a flea-bite on a Brontosaurian lizard.

But one final scene, for after all it is the idea—not the detail—that makes life worth its living. Shortly after the turn of the hundred thousandth century Winters revisited the Earth and gazed in awe at the reddish sun that marked off the days of a dying planet. Not more than ten thousand souls now dwelt upon its surface and Winters was filled with a sense of sadness at the changes wrought in the familiar scenes. On a mountain top in Africa he talked with an old man, grey-bearded and feeble with age.

"I shall never undergo the youth-process again," he said. "I am old and presently I shall die and be no more."

"If you were young you would be full of hope and energy and not wish to die," replied Winters.

"I shall die because life has nothing to offer me."

"Oh I know what you will say" (he continued). "Food and love and adventure are all very well. They titivate the senses—nothing more. Though we humans have grown in importance, we are insignificant atoms measured in the scale of Creation. There is nothing we can do that is really important. Suppose we increase human stature until we stride about using stars for footstools—mere size does not add to our importance. I do not eat unless I am hungry. I undertake no action unless it is for a definite and reasonable purpose. I can see no purpose in life—so I refuse to be so absurd as to continue living!"

"But one thing you omit—why not devote your life to solving its secret? Try and find the reason or purpose for existence!"

The old man shook his wintry head emphatically. "I once had a friend who made that resolution. He set off . . . oh, thirty thousand years ago . . . for a secluded planet at the edge of the universe in the direction of Alpha Centauri where he planned to conduct research upon the subject. His name was Condonal. I have never heard of him since."

Winters, vaguely saddened, determined to leave the earth and set off alone through space. He found himself growing more and more unsatisfied with life and all that it meant. After all, what possible purpose could it serve? After a year's lonely cruising he determined to make a search for the man called Condonal. His adventures would fill all the books in all the libraries of the world. He came at last, upon the report of a dark-haired woman with whom he had lived half a month, to a blue-white sun about which circled one lone planet scarce a thousand miles in diameter. Here, she had heard, dwelt Condonal and here he had been for many thousands of years. Many men and women had come to visit him, she understood, and most of them had remained as his disciples.

Winters felt a curious sense of novelty and youth as he swung his space-ship down and cruised over the face of the green and silver world below. Eagerly he peered for signs of habitation, but in vain. Then he noticed that the world did not turn on its axis, but remained with one face forever fixed toward its life-giving sun. Near the equator and at the very edge of the day-line he found at last a great building with an enormous white dome that thrust above the green foliage. He brought his vessel to a rest on the soft earth in the midst of a group of low structures that surrounded the central tower.

As he stepped out and felt smooth grass beneath his feet he experienced a delightful sense of freshness—the air was different from any he had ever breathed. A light breeze blew from the night country behind him, cool and delicious and smelling faintly of melted snow. In this place it was always spring and always morning. No one came to meet him, but he stood there alone with a feeling of familiarity, as though he had at last come home. Trees cast great long shadows across sap-green lawns and his memory went back to the days of his childhood and early rambles through the tingling dew of barefoot summers. He felt wonder well up in him and made his way toward the nearest building.

At the door a man greeted him calmly, offering shelter and food.

"I have come, if I can find him, to speak to a man called Condonal."

The man nodded as though he had expected the request. "The Master is free for the next hour, when he is due at the Temple," he said. "I will take you to him."

Winters was led to a building of grey stone close beside the huge dome that dominated the scene and was ushered through an open doorway into a large room. The light was dim after the bright sunshine and it was a few seconds before he made out the youthful figure seated in a huge chair in the center of the room.

"What do you seek?" asked Condonal—and his voice was deep and quiet like an organ tone. Then Winters told him of his search and its purpose and he nodded understandingly.

"You are welcome here," he replied. "Our community is made up of searchers. What purpose has life? That is our problem in research and we shall solve it!"

"But what possible solution can there be?"

"We do not know even that—on the face of things there seems to be none. Stars are born; wax great; diminish and die. Throughout infinity—universe after universe—the process goes on. What is will one day not be and on still another day again exists. We have pulled stars apart and found no secret hidden inside. We have pursued every phase of science to its last ultimate datum and found no purpose in creation. Our reason plunges forward and searches every possibility of the future and fails to find any basis upon which to erect the least spec-

ulative structure. Life is not a reasonable thing, perhaps."

"You have come to that conclusion?" cried Winters sadly.

The deepset eyes twinkled sanely. Condonal nodded. Then he held up his hand and his dark, lean face lighted with purpose.

"But nevertheless our research is sure and we *will* discover the secret," he smiled. Winters' frown of bewilderment amused him. "The answer lies in evolution."

"But we have been experimenting for a hundred thousand years!"

"And we have failed; I know! We have been on the wrong track. We have tried to evolve the human animal into some finer type. That is a waste of time."

"But . . . I don't understand."

"Yet it is plain enough. The human animal has achieved a new plane of existence called *reason*. Very well. This reason of his asks a question which it is unable to answer. Consider a moment how this reasoning ability came into existence. We will start with first life —one-celled jelly-like creatures in a pond. Could they reason? Then we will consider the structure of the human body. What forms its tissues? Nothing but specialized forms of these same one-celled primitive organisms! Can your muscle tissue reason? Yet each cell of it lives and eats and reacts to its environment and, eventually, dies. It cannot reason, but its willingness to cooperate with a billion billion other cells makes possible a human being who *can* reason. Now do you see?"

"I'm afraid . . . well, I do seem to have a faint glimmering."

"But it is so simple! The cooperation of animals makes possible a new thing in creation—*thought*. What would result from the cooperation of thoughts? Why not another new departure—a super-thinking—an understanding—an ultra-physical Being who shall be capable of reason as far above our mental merry-go-rounds as we, in turn, are above the elementary tropisms of bacilli?"

"But . . . what good would that do us? It is we ourselves who wish an answer to life's riddle."

"And when He is created, will He not tell us?"

"Hmm! . . . You used our body cells for your analogy. Did you ever think of thanking them for their creation of your body? Did you ever try to explain to them what reason is?"

Condonal laughed cheerfully. "You are an apt pupil! But answer me this: how many hours have been spent by our biologists in human history examining into the lives of our body cells; learning how to help them; striving to improve their condition?"

Winters nodded. "It is a point," he conceded.

"And we have found them incapable of understanding, have we not? If we had found them to be little creatures capable of speech and reason would we not joyfully have commenced their education—for our own sake, if not for theirs?"

"Oh ho! And you think that your super-animal will . . ."

"Of course! When He looks around Him and begins to inquire into the reasons of His own existence He will find us. He will study us and marvel and without question will inform us how to act so as to help Him in His own evolution. And *then* . . . ah! . . . Then He will search out the secret of life and tell us. Perhaps we will not be able to understand, but we will at least have the opportunity."

Winters was excitedly pacing the floor, engrossed by the bold conception. "Even if we do not understand—we will at least know that there *is* a purpose and that knowledge in itself is all that we need."

"But we have not yet had that assurance," reminded Condonal smiling. "Much remains to be done. I must now go to the temple."

Winters followed his stately progress humbly and hopefully. At the temple Condonal left him and he made his way through the main doorway and entered the vast cavern of the building. From above poured a deep purple light like a velvet hanging and shone sombrely upon a thousand quiet figures seated in black chairs. Three hundred feet above stretched the great dome, many-windowed and mysterious, and here and there on the walls Winters saw little cages in which men tended banks of instrument boards.

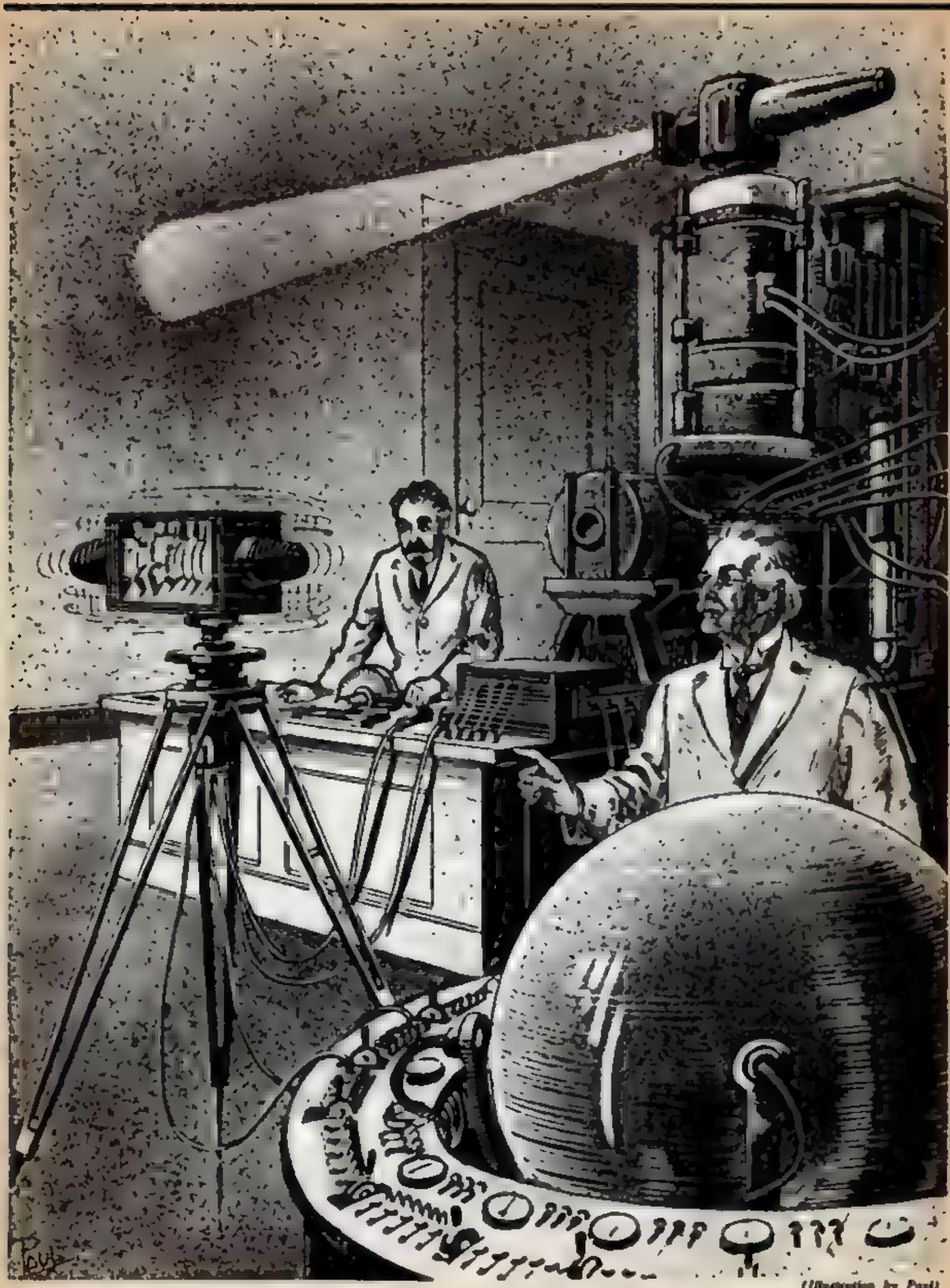
They seemed very far away and unimportant in the dim light. Winters found himself tingling gently all over the back of his neck. Three other persons stood beside him in the doorway and presently one of the figures seated in the body of the great hall stirred quietly and rose, whereupon one of those waiting walked softly forward and took his place, while he made his way out toward the sunshine.

As he passed him Winters studied his face curiously. It was pale as faces normally went—being olive brown—and an expression of utmost peace and placidity rested on the shapely features. Presently more people arrived at the doorway and stood quietly waiting. Two more exchanges were made and then a fourth sitter rose from his place and Winters, impelled by the expectant glances beside him, walked forward and sat down in the chair.

The back was shaped to fit his body and two soft pads pressed against the base of his brain. Instantly he felt a great current of emotion sweep through him—vast and inexpressible. He caught vaguely the current of some deep underlying meaning that surged and changed in pattern. But more than that was the calm sense of *right* —as though this particular place was where he belonged and as though some definite object was being accomplished here. It was the spirit of cooperation in its abstract non-material form. A great and peaceful joy came into his body and made him unaccountably happy and tender. Tears welled into his eyes.

● But presently he felt one touch him on the shoulder and looked up at a kind face which said "Your mind is not yet disciplined. You must first study the ritual. You are not cooperating." And he rose to find a dark-skinned woman in white robes waiting to take his place. In a sort of drunken ecstasy Winters left the Temple and wandered thoughtfully out into the eternal morning sunlight that poured peacefully on the soft landscape. His mind was filled with new vague thoughts that eluded systematic pursuit provokingly. After an hour he found himself back at the temple. If he could enter again he felt sure that he would come out with the nameless impressions more deeply registered upon his mind and would then be able to classify them and think clearly. But he was stopped smilingly at the door and told to first learn the ritual.

(Continued on page 183)



(Illustration by Paul)

The tripod oscillated violently and swung around coming to rest pointing northward. "M.de Saint-Imier's auto has turned turtle on the Estampes road," Maxxlier said quietly.

THE RADIO TERROR

By EUGENE THEBAULT

Translated from the French by
FLETCHER PRATT

● This exciting story enters its critical phase with the "plot thickening." A powerful man is systematically at work to destroy humanity. Where will the next blow fall?

This story shows in a vivid way some of the bizarre possibilities of electromagnetic radiations, possibilities that have been barely touched. Although many readers may think that the author has departed too far from plausibility, they should realize that as yet we know very little about the peculiarities of the spectrum.

But no one can deny that this story is extremely well-worked out, lively, human and even at times amusing in the French fashion.

WHAT HAS GONE BEFORE

● Parisians listening to a public loudspeaker in October, 1952, suddenly hear a voice from the loudspeaker threatening to extinguish all earthly life. It announces that in ten minutes the sun will disappear and a glacial cold will follow. Everyone takes this humorously.

In accordance with the warning, the sun begins to darken and the cold begins. Paris in panic-stricken. Gribal, an engineer, has just come to the laboratory of M. Mazelier, a famous scientist, when the darkness and cold descend. They find that matches will not light. Mazelier gives Gribal a helium lamp which lights, while Mazelier tries to detect the source of the power that is causing the terrible phenomena. Mazelier is confident that some powerful man, an enemy of the race, is actually at work.

Gribal goes home to join his family, finding his way with the helium lamp. His wife and two children, Paulette and Roger, are panic-stricken. But soon there comes a lifting of the darkness and cold.

But as they look out of the window they seem to see Paris afire. Mazelier comes to see them and tells them that the flames are only an illusion caused by the same person who controlled the darkness and cold. As the two men go down the deserted streets a car draws up to a curb, a man jumps out, and then seeing the two men jumps back again and drives off.

The two men remark on this as well as the fact that the chauffeur appeared to be a Chinaman. Returning to Mazelier's laboratory the men find that the source of the radiations causing all the trouble came from an aristocratic house in the Rue Cortambert. A young workman named Duplay visits Mazelier and tells him he recognized the voice in the loudspeaker as that of the Marquis de Saint-Imier for whom he had done some work. Saint-Imier lives in the Rue Cortambert. Going to the Rue Cortambert the two scientists see a car also driven by a Chinese go to the Marquis' house.

Gribal's daughter, Paulette, a science student, goes to a reception of the Minister of Science and there meets Marquis de Saint-Imier. She also recognizes his voice as that of the man who promised destruction to the world. Paulette inadvertently reveals that her father and Mazelier had a helium lamp that defied the darkness. Gribal enters the room to hear his daughter's name linked with that of Marquis de Saint-Imier.

NOW GO ON WITH THE STORY

● But the crowd separated him from her. He could only wait, his heart beating rapidly with fright. Saint-Imier was there! The audacity of the man was beyond anything he had imagined. And in spite of himself, Gribal became the witness of a singular scene.

Near him, Ghislaine Roberval was passing by, majestically beautiful, followed by Saint-Imier, whose hot eyes burned with an extraordinary fire as he looked after her. The marquis approached the beautiful widow and said something to her that Gribal could not avoid hearing very clearly:

"Will you come tomorrow? I will wait for you."

Mme. Roberval looked on the marquis with a contempt she made no effort to conceal:

"You're crazy," she said. "You give me the horrors."

She turned her back on the marquis, leaving him pale with rage. Tenaciously, he maneuvered through the crowded room to regain her attention. But no less obstinately, she fled him, without disguising her dislike and her impatience. It was so pointed that people began to watch them, the more so since the marquis, for once in his life, seemed to have lost all control of himself. Finally, at a moment when Saint-Imier was about to rejoin her again, Mme. Roberval, without affectation, took the arm of a young man in the adjoining salon. Someone said:

"It's M. Gabriel de Neuville, the young diplomat."

For a moment it looked as though the marquis would leap on his rival, but he contented himself with giving him a glance of pure hatred, and moving slowly away as though the public snub had not affected him. He even smiled—but with what a smile!

Gribal was able to get to Paulette finally, and to her great astonishment, led her toward the cloakroom.

"Are we going already, father?"

Then she noticed her father's agitation and did not insist. But in the taxi which was taking them back toward the Rue Boissy d'Anglas she did not hide her annoyance:

"What's the trouble? Did I do something wrong? Why did we have to leave so early?"

"No, daughter, what happened is hardly your fault. You don't understand?"

"Understand what?"

"That marquis, who was talking to you—"

"Well?"

"You had better avoid him, daughter."

"He is not a nice person?"

"No. What did he say to you?"

"He asked me what you thought of the end of the world."

"And you mentioned Mazelier? . . . And the helium lamp?"

"Yes . . . Shouldn't I have?"

"No."

"Why?"

"I'll tell you in a moment. But be reassured. You couldn't know. I should have told you not to say anything about it, about anything that happened yesterday. For that matter, I couldn't know that you would meet that man."

"But that man, can he do you any harm?"

Gribal made an evasive gesture.

Paulette was not stupid; her brain was working furiously.

"Then," she said, "I must have touched on a dangerous secret without knowing it?"

"Perhaps."

"This secret—do you know it, father?"

"No."

"Does M. Mazelier?"

"I don't know. He may know no more than I do."

Paulette did not dare to ask confidences her father was unwilling to give. She said in a meditative voice:

"That man, father, he really frightens me. And his voice . . . it seems to me that I have heard it somewhere. Ah, if I could only remember."

All at once, she gave a little cry:

"I know, father. I know where I heard it. It was yesterday, on the radio. Therefore, it was he who—"

Gribal took his daughter's hand:

"Ssh, Paulette. And above all, don't talk like that to your mother or to Roger."

Was any further doubt possible? Paulette also had identified the man who had threatened the world so madly and shouted his hate for the whole human species over the radio.

The cause of this hate? A matter of no importance—the important thing was to defend oneself against the man as against some wild beast, and to bring him down like a mad dog.

CHAPTER VII

The Maid and the Chinaman

● At the office, where Mazelier and Gribal were discussing the matter in the silence of after-hours, they arrived at a single determination to use any possible means to suppress the adversary who, pretending ignorance of things scientific, nevertheless possessed powers of the first order.

Mazelier repeated for the sixteenth time: "It's going to be a hard fight."

"Are you discouraged, chief?" asked Gribal, worried.

Mazelier lifted his head: "I will carry on the fight to my last breath," he cried. "I only wanted you to understand that from now on we two are directly threatened."

"What can we do?"

"Nothing. Wait."

After a moment of silence Mazelier added:

"Listen, Gribal: if he gets me, you will have to take my place immediately. If you are the first to fall, I will do anything on earth to make him pay for it. Now, I must put you in touch with what means of defense we possess. For we have some—and not so feeble, either. Do you see that sphere? What do you think it is made of?"

Gribal looked at the gleaming ball with its electrical connections and dials which the scientist had used in calculating the center of the emission of the cold and dark waves.

"I don't know that metal," he admitted.

"It is not metal, my friend. It is made of solidified air. I had to experiment a long time before finding a means of producing it. And this globe of solidified air is also, as you have reason to know, an excellent loudspeaker. But it contains a special apparatus which is at one and the same time a radiometer and an emission-generator. It is from the interior of that sphere that the emissions went forth that counteracted those of Saint-Imier. You must learn how to use it, Gribal. But I warn you that it is impossible to use it without producing always some very strange and unpredictable effects."

"Dangerous effects?"

"Sometimes, if one is not careful. In any case, of such force that they would not pass unnoticed. What would you say if at a given moment all the motors in Europe suddenly stopped? All the autos, all the electric railroads, all the subways, everything but steam engines?"

"You could do that?"

"Easily, Gribal. By the use of the same apparatus I could blow up at the same moment all the explosives all the projectiles and all the other munitions within a given field of radiation. Unfortunately for war use, those nearest would go first! I imagine that I could also act upon the nerves and muscles of living beings. You see why I cannot confide the use of this apparatus to everybody?"

"Chief," said Gribal, stirred, "I will be worthy of your confidence."

"I know it, my friend. But be careful of the consequences of the slightest indiscretion, of the slightest overheard remark. Ask yourself only what would happen if the Marquis de Saint-Imier were aware of the method I have followed. I would have to bend all my efforts to undoing everything I have done. Singular situation!"

"With my sphere, I opposed the radiation emitted by Saint-Imier with more powerful emissions. No doubt you noticed that I was worried yesterday. It was because I was not at all sure of the effects of the radiation I discovered. I might very well have intensified the catastrophe instead of preventing it. But I had to risk everything to gain everything. And fortunately it turned out well. In that single hour of combat I learned more than any time in my life."

These reflections had a peculiar effect on Gribal; he had a certain sensation of retrospective fear.

"Ah," he murmured, "what would have happened, if you had not been here?"

Simply and calmly, as though he were delivering a lecture, Mazelier went on: "This is what would have happened. In all the countries under the influence of the radiation emitted by the Marquis de Saint-Imier there would not be a single living being at this moment."

Mazelier went on: "Reynier-Vitral was right. Living beings can exist in an atmosphere composed differently than ours. He is right to remember the precision oxygenators invented by Bayeux. But he was wrong in imagining the phenomenon could have lasted. A frightful poisoning would have finished us all off. Without even mentioning the cold. We would not have been far from the 80 below zero Paulette mentioned."

"But how was it that the phenomena of destruction were localized, if I can put it that way, in the region east

of Passy? The marquis threatened the whole world, and more than half the world escaped. *Parbleu!* I see, though . . . The marquis arranged it so that he was outside the effects!"

Mazelier shook his head.

"No, Gribal, don't think that. The dark, the poisoned air, the cold, the destruction of cellular matter would have manifested themselves to the west as well as to the east. It was only a question of minutes."

"But in that case the madman would have shared the fate of his victims!"

"Who knows? Perhaps that madman, as you so justly call him, was anxious to die. He is not the first who has wished that everything should go down when he went."

● In his turn, Gribal made a negative gesture:

"Oh, come, chief! Be reasonable. The man is still young; he is not more than forty-five, Paulette says. He is rich. He is the center of the Paris fashionable world. He has everything he needs to make him happy. And he wished to die—to die amidst the destruction of the world. It is inadmissible; it is hardly possible that he is as crazy as that."

"That is his secret," replied Mazelier gravely, "and I admit to you that I don't know the reason. It's enough that I know the fact. The man is a danger to humanity; he must be reduced to powerlessness."

"And if he repents some day?"

"Well, Gribal, the church tells us that we must pardon those who repent. But we must also be pitiless to those who persist in evil."

"Doubtless. But how can I believe that this man wishes to do the same thing as some people I knew at Marseilles?"

"Good," said Mazelier with a laugh, "you're going to tell me some tall story, but go on."

"I swear it is nothing but the truth. You remember that in 1910 there was a good deal of talk about whether Halley's comet would hit the earth and reduce it to fragments? Well, my Marseillais friends climbed up to the belfry of the cathedral, there to have a better view of the end of the world."

"You're right, at that, my friend, not to take the matter too tragically. Too bad we can't have young Roger with us—he knows how to look at these things."

The name of his son recalled to Gribal that he was keeping his lunch waiting.

"We're going to be late getting to the table," he said, pulling out his watch.

Mazelier, who never knew what time it was, approved.

"Well, let's get something to eat then. Come back right away, Gribal, and we'll get busy on it immediately. . . . Ah, by the way, do you remember that work you did on yttrium, zirconium and tungsten. You remember that you established certain analogies and called them the 'masked bodies'?"

"I remember perfectly, although it was some time ago."

"At the time I gave you my own notes on the subject. You have them still?"

"I should say so. They are locked in my desk along with the most precious of my other papers."

"In that case, I suggest that you bring them back to the laboratory when you come. We are going to need them."

"Nothing easier."

"All right. Goodbye, Gribal."

"Till after lunch, chief."

Gribal arrived at his home in a state of enthusiasm difficult to describe accurately. The previous worry had fled; he felt only the high spirits of the fighter who has become certain of victory. What he now knew of the labors and discoveries made by Mazelier reassured him completely. Who in the world could equal him? Nobody, he answered himself; Saint-Imier was already beaten, for Mazelier saw into scientific depths to which the other was a stranger.

He leaped up the stairs four at a time. But a surprise was waiting for him; there was no lunch ready. Mme. Gribal met him in the entryway:

"Did Suzie come back with you?"

"The maid? Of course not. I haven't seen her."

And perceiving that his wife looked a little worried, he inquired:

"Has she gone out, then?"

"Yes, father," answered Paulette, "and it's so queer! She went out to do the marketing about nine o'clock."

"And she hasn't come back?"

"You can see. And it's twenty to one."

Gribal grumbled:

"That's carrying things a little far."

"Something must have happened to her," declared Paulette.

"Oh, I hope she hasn't been run over," said Mme. Gribal. "There are so many street accidents nowadays."

Roger, philosophical as ever, offered a more comforting hypothesis:

"Probably gone to a talkie and forgotten what time it was."

His mother replied severely:

"You know very well there aren't any morning talkies any more."

This delay was really worrisome. Suzie, who was from Brittany, a native of Saint-Guenole, was a pearl among housemaids. Clever, a hard worker, careful and honest, quick to obey and speaking little, she had been in the employ of the Gribal household for over a year. She never asked for extra evenings out, never had to be reprimanded. She appeared for work with such regularity that the concierge of the apartment was in the habit of saying:

"Ah, that Suzie must have a clock in her middle. You could run a railroad by her."

"What shall we do?" asked Mme. Gribal, a prey to somber imaginings.

Gribal was perplexed.

"Faith," he said, "let's wait a little longer. What should I do? If she doesn't show up, I'll report the matter to the police."

And then, to reassure his wife, he added:

"I don't think there has really been any accident. They would have let us know, and she's been gone long enough for them to send word."

● But he himself was not really convinced. Meanwhile, he decided to look up the notes of the experiments of which Mazelier had spoken. He knew exactly where they were—a little secret drawer at the back of his desk.

He took out the key for the drawer and—stupefaction! —found it wide open. Hardly believing his eyes, Gribal called:

"Paulette! Have you been in my desk?"

The young girl ran to him:

"Of course not, father. You know very well that no one would touch your— "

She did not finish. Gribal gave a cry of astonishment and annoyance; the secret drawer had been forced; the note books, the package that had contained them, were gone.

Roger and his mother hurrying to the scene of the disturbance looked in astonishment and the too-evident traces of the robbery. After a moment of silence, Mme. Gribal spoke:

"But it's impossible! Impossible!"

"Yes," said Gribal, controlling himself with an effort, "it's impossible, but it happened! Look, has anyone at all been here during my absence?"

"Nobody, absolutely nobody."

"And you didn't go out yourself?"

"Not for a moment."

"Who has been in this room?"

"Suzie. And Suzie alone. She did up the room before going for the food."

"In which room does she usually begin?"

"She usually begins in the dining room instead of this one."

"And which room does she do last?"

Paulette and her mother replied together:

"Your office."

"And she went out immediately afterward?"

"Yes, but— " demanded Mme. Gribal, "all the same I hope you don't suspect her."

No, Gribal did not suspect her. All the same there was the evidence. Drawers do not force themselves; papers don't take wings and fly away. Who else could have entered the room?

Most important of all, who would have gained from the crime? Certain the missing documents were of the greatest importance, since Mazelier had been so urgent about having them at the office. Now, what possible advantage would they be to Suzie, an illiterate servant from Brittany? And who could have told her of the existence of the secret drawer or what it contained?

In any case, no further hesitation seemed necessary; the police must be called in. Gribal clapped on his hat and hurried off to the nearest station, but on the very doorstep remembering Mazelier's counsels of prudence, said nothing of the loss of his papers.

A servant four hours late? The affair seemed to the policeman on duty one of the smallest importance. Nevertheless he asked the usual questions, taking notes:

"What was the name of your maid?"

"Suzie Kerdel."

"Ah! a Bretonne?"

"Yes, from Saint-Guenole."

"Oh, in that case, she will be easy to find. There's a peculiarity about the women of that neighborhood, I know it. They look very Chinese. A skin almost yellow, slanting eyes, long black hair. Doesn't that describe your maid?"

"Perfectly," said Gribal, surprised and strangely moved by the observation, which had never struck him before. "Chinese type"—the idea roused in him curious associations and memories.

"Any special details? How was she dressed when she left your house?"

"As usual; that is, she wore a regular Breton costume."

"That will make the search very much easier. There are not too many of those queer Saint-Guenole bonnets running around the Paris streets.

"Where did she live?"

"She went home every evening; 43 Rue Faber."

"At Grenelle? Good. I thank you, Monsieur. Go home to your lunch; I promise you that before your next meal you will have news of her."

And the policeman added, with a smile:

"Even if she was forty-eight that makes no difference. Women can do their running around at any age."

Gribal did not answer, and for a good reason. His suppositions cut considerably deeper than those of the policeman, but they seemed so absurd that he rejected them as untenable.

The most reasonable thing to do at present was to wait for the results of the police inquiry and to warn Mazelier as soon as possible. There was still time to put the police on the track of the stolen notes if the scientist thought the effort would be worth while.

Gribal was so much affected by the loss of the notes that he was a little apprehensive about seeing his chief again. The engineer moved toward the office, but emotion seemed to halt his footsteps. The scientist would never believe such a fantastic story—a theft on the very morning when he had asked for the notes! And at the best, he could not but draw the conclusion that Mme. Gribal paid very little attention to what went on in her house. It was both ridiculous and painful; in fact, nothing can be worse than the situation of a victim to whom one can say, "It was your fault." As he passed the concierge's lodge, he stuck his head in to ask Father Bibent:

"Has M. Mazelier come back yet?"

"He went up just before you, Monsieur Gribal."

The engineer sighed. He hated to face it. But he consoled himself with the thought that after all, he had not much with which to reproach himself.

CHAPTER VIII

The Mysterious Saint-Imier

He encountered the scientist at the very doorsill of the inner laboratory.

"Ah, there you are, Gribal! I was afraid I was late and was keeping you waiting. Come along in."

"Chief," babbled the engineer nervously, "I'm sorry to have to tell you that—"

Mazelier, as he was taking off his hat and coat, had looked around with the experienced eye of the methodical worker to see that everything was in its place before beginning. And now suddenly, like Gribal before the forced desk, and while the other was in mid-sentence, the scientist gave a cry of pain, surprise and anger. Then, clutching at his heart, he would have fallen, had not Gribal sustained him and assisted him to a chair.

"My God!" he breathed.

"Are you ill? I'll open the window."

Clumsy and hurried, like anyone else in such a case, Gribal fumbled with the catch, but was called back by Mazelier:

"Gribal! Look! The sphere—the dials—disappeared!"

The engineer turned, rubbing his eyes, refusing, in his turn to admit the reality. The dials, the connections, the sphere, had all vanished.

Underneath his frail-looking exterior Mazelier concealed more energy and decision than his assistant. He made no complaint, expressed no regret. Recovered from his momentary weakness, as calm as though he were giving directions for some minor experiment, he said:

"Someone has stolen the whole apparatus. Not an hour ago. Let us discover how it was done—if possible."

"Didn't you lock the laboratory door when you went out to lunch?" asked Gribal, restored by his chief's magnificent cool-headedness.

"Yes. I remember it perfectly. Besides I have just opened it again with my key, and in opening, found nothing unusual about the lock. Let's have a look at the window."

It looked out on the Avenue des Champs-Elysees. The laboratory was on the fourth floor, and it was impossible that a thief, in broad daylight, had managed to climb to such a height to get in. Moreover the glass was intact, the catch still closed. Nobody could possibly have touched the window.

"Therefore," said Mazelier in his calm voice, as they ended the examination, "someone got in with a false key. Let's go see Father Bibent. But don't say anything that might frighten him, nor anything that would rouse his suspicions about what happened. I don't want him talking."

Father Bibent himself had one of those honest, rock-hewn faces; Mazelier had known him for too long to suspect the old man himself of such a piece of thievery.

"Tell me, Bibent, did anyone call to see me while I was out?"

"Oh, no, monsieur."

"I expected someone, and when I went out I clean forgot to tell you. Look, try to remember—you didn't see anyone at all?"

"No, no one asked for you Monsieur Mazelier, I'd swear. The only person here this noon was a kind of huckster selling little statuettes. A yellow man."

"Ah, a huckster? That's funny; those chaps are negroes for the most part."

"Ah, if you had been five minutes later going out to lunch you would have seen him as clearly as I did. You had hardly gone out, both of you before he arrived."

"What sort of little statuettes did he have."

"Oh, ivory ones. I chased him along. He looked like a bad egg with his big mouth and yellow skin and his nose all flattened out. A kind of a Chink, I tell you, M. Mazelier."

"A Chink!" cried Mazelier and Gribal together.

"Yes. I shut the door in his face and didn't see him again. That's all. But aside from that, nobody has been here during the lunch-hour. Sure and certain."

"Thank you Bibent."

The two men returned to the office. In the laboratory they looked at each other.

"Well, Gribal?"

"Well, chief, it was probably the marquis' chaffeur."

"Do you think so?"

"I don't think so, I'm sure of it. But if I can explain what happened here, I am at a loss to explain what happened at my own house."

"At your house?"

"Yes. My desk was forced this morning, and someone took— "

"Someone took?"

"The notes on the experiments, chief."

The expected words of blame did not come. Instead, Mazelier said simply:

"That does not surprise me, my friend."

And he added, after a minute:

"Never mind those notes. We can get them up again. I remember them fairly well."

"After ten years?"

● "There are certain things one does not forget, Gribal. You will see when we get at it. But I understand how the theft was committed here. Do you know the means at your place?"

"I can only suspect my maid, and I can't believe it was she."

"Have you talked to her?"

"No. She went out this morning to do the marketing. She had not yet come back when I left."

"Well then, Gribal, it was she. She stole the notes and then ran away."

"But that would be so stupid. By this time they have certainly found her. The man at the police station was right. A Bretonne in a Saint-Guenole bonnet would be easy to find in Paris. Especially since I have her home address."

"Did you say she was from Saint-Guenole? She must have been a descendant of that colony of Orientals there, in that case?"

"She looked quite Chinese, as a matter of fact."

"It was she, Gribal. Decidedly, we have very little luck with the Chinese today."

Was Mazelier quite undisturbed by the double theft, since he found the heart to joke about it? Gribal himself was the prey of a considerable feeling of uneasiness, which he did not seek to conceal from his chief. The marvelous sphere, the machine that had saved humanity from disaster, Mazelier's greatest discovery, was in the hands of the redoubtable enemy of the race, who thus sent his agents everywhere. Would he not make it the instrument of new crimes, perhaps an ultimate disaster?

Mazelier laughed:

"Ah, my friend, there never was a more useless burglary! The Chinaman had hardly got out of here before the sphere vanished from his hands. The solidified air of which it was composed became gaseous again. And as to the radiation-generators within it, they are completely gone by this time. The whole apparatus was kept in a state of abnormal equilibrium by radiation emitted by another apparatus within this laboratory—look. Our friend, the Marquis de Saint-Imier has stolen nothing but a mirage, Gribal. And every time he does something like that he leaves another trail pointing to himself of which we can make use. He thinks he has us now, whereas it is we who have him."

"Well, what do we do next then?"

"Keep quiet first. And the— "

He interruped himself, prey to a sudden nervousness, and began to pace back and forth in the laboratory.

"You will see, my friend. We will make another

solidified air sphere, better and more easily handled than the first. We will get to work on a whole group of new forms of radiation. The atom is going to yield up to us its last secrets. For everything is possible, Gribal. You hear—everything, absolutely. This Saint-Imier is an imbecile, in trying to limit something that has no limits. Doesn't he see that matter cannot be destroyed?"

He halted, thoughtful for a moment. Then he continued his train of thoughts, speaking, one would say, more for his own benefit than for Gribal's.

"Yes, *parbleu!* The Chinaman slid into the stairway and went up the minute Bibent's head was turned. Yes, the maid at your house had precise instructions. But all that has no real interest. What I would like to know is—yes, yes, the only important detail is how Saint-Imier discovered the existence of the sphere and the notes. He found it all out in the course of a few hours this morning. How in the world did he do it?"

And replying to a question which Gribal had not pronounced, Mazelier went on:

"How did he 'see' what went on here and in Gribal's house?"

That same evening Gribal found at his house a communication from the police. They announced that their inquiry had received a complete setback. Suzie Kerdel remained unfound.

A single significant detail. In the Rue Faber, at the address she had given, no one knew of her. The pearl among maids was, according to all appearances, nothing but a crook. Mme. Gribald, ignorant of the whole truth, could not understand. Suzie disappeared? She must have been the victim of gangsters who had first robbed and then killed her, probably thrown the body into the Seine or cut it in pieces and hid it somewhere. The poor woman was really in despair.

As to Paulette, she did not partake of these kindly illusions. But she kept her opinions to herself, and this silence pleased Gribal considerably. He was still more pleased with his daughter when she offered to help her mother with the household duties instead of hiring another servant. "Economy," she said to her mother, and then in her father's ear whispered, "Economy—and take no chances."

Gribal understood that although Paulette knew nothing, she had guessed nearly everything, and realized that if things became complicated he had an assistant he could rely upon.

For the moment there were no complications. At the office the work went on as usual, and as though nothing had happened. Mazelier, however, was more careful than usual to let the press and public know about all the work he was carrying on and the results hoped for from it. Nothing to hide, was the key, nothing to hide, and nothing sensational being done. But would these precautions really hide from the Marquis de Saint-Imier the fact that Mazelier and Gribal, in the silence of the inner laboratory, were continuing their secret researches?

● The marquis himself was equally open. Apparently he was enormously busy about everything but scientific research. For one thing he was out of the city. The newspapers were full of a big fête he was giving at Nice, where he had assembled performers to give a series of all the known dances from all the different parts of the world, ending up with the massed performance of a troupe of five hundred dancers in the open air, including the best artists of the Paris stage.

At Pau, he was organizing a series of boxing matches; next he was at Chamonix in the midst of a mountain-climbing expedition. He went over to Algiers and held a camel race, he arrived at Touggourt In-Salah and played practical jokes on the grave Arab sheiks there. His success at Naples was less striking, his efforts to reproduce the destruction of Pompeii on the scene, having aroused the anger of influential Italian circles.

He was next heard of in London, organizing a race among the "super-horses" of the British Empire, ridden by an assemblage of the best jockeys in the world. In fact, he was living the life of a superman of fashion, throwing money out of all his windows, and as he was as polite as he was generous, as distinguished as he was extravagant, he enjoyed a considerable esteem in his world.

Could one possibly suspect such a person of having conceived a gigantic and savage attempt on the lives of millions, and even more, of having tried to carry it out?

Mazelier and Gribal had almost arrived at the conclusion that they were wrong. The marquis was surrounded by people, by servants; perhaps one of them, keeping carefully in the background was the real criminal. It was not at all impossible.

But always they ran up against Paulette's observations; the voice that had come over the radio, and which had been heard by everyone—she remained certain that it was the same voice she had heard in the minister's drawing room. One can be deceived in voices, but she insisted.

One morning on opening his paper, Gribal noticed a small item in the society column. The Marquis de Saint-Imier was returning to Paris. He was going to give a series of costume balls at his house in the Rue Cortambert. It would attract the whole smart world of Paris; one could not consider oneself in style if one did not receive an invitation.

Meanwhile the days were going by in absolute calm for Gribal and Mazelier. Paris had already forgotten the strange autumn night in the middle of the day; the judicial inquest that had been opened to discover the identity of the "practical joker" had been quickly closed without result. Would Mazelier have time to complete his experiments without any further interference?

One afternoon in March, Mazelier was working in the laboratory at the office. He had sent Gribal to the library to consult Reynier-Vitral's latest work on isotopes; he was in the main laboratory. About him the other research workers were watching an electric furnace in which the scientist was carrying on, with improved apparatus, the experiments of Wolher and David in the production of synthetic diamonds by means of boron. Mazelier was seated at his desk, working out chemical formulas, very busy over his task.

All at once he felt his chair move and sway, as though from a powerful earthquake shock. The movement was so violent that Mazelier was thrown from his seat, his head striking the sharp point of a magnetic instrument that he had placed on the desk that very morning. As he fell, the scientist cried out; the others gathered round him and lifted him up half-conscious. Fortunately the wound was insignificant, but a quarter of an inch in either direction and it might easily have been fatal.

The assistants could not understand the accident. They

had felt no shock, perceived no movement. In the whole laboratory nothing had moved but Mazelier's big armchair.

"Decidedly, I'm getting clumsy in my old age," the scientist explained when the wound had been treated. "I must have moved too quickly."

He had no more to say on the subject. But he moved the magnetic instrument away and had workmen take from his office every object that possessed dangerous corners. And when Gribal arrived, he took him into the inner laboratory and locked the door. The assistants noticed that Gribal looked worried when he emerged some time later.

Nevertheless, during the following days, everything went along in order. Mazelier carried on his work as usual, without making any further allusions to his accident.

But one morning Gribal, who felt in the most excellent health when he went to bed, woke up with a frightful headache. He took an aspirin, but without the slightest effect. What was worse he felt extremely weak, and even for him to go to the office demanded an effort that took the last bit of his energy. As he got out of the taxi at the door, he crumpled to the sidewalk, and Bibent had to help him upstairs, and as he arrived at the laboratory he fainted.

The scientist was alone in the office at the moment; it was early and the assistants had not yet arrived.

"Shall I call a doctor?" inquired the concierge.

"Yes, yes, hurry up. But before you do that, help me get him into the inner laboratory."

Alone with Gribal, inanimate in the big armchair where he sprawled, Mazelier acted quickly and with certainty. Near the big sphere of brilliant metal on the table, he found a button, touched it, and then pulled a lever. There was the sound of a low humming, a vibration made itself felt, and the hum deepened to the sound of the lowest tone of some great organ. After a minute or two Gribal opened his eyes, then moved in his chair, sat up and said:

"I think I must have fainted."

"You certainly did, my friend. Do you feel better now?"

"I feel quite all right. *Parbleu!* My headache is gone. It was really stupid of me to pass out like that. Something must be wrong with my digestion."

CHAPTER IX

Attempted Murder

● Mazelier maneuvred another lever and the vibration ceased.

"Ah," said Gribal. "You have been using the sphere."

"Yes, to cure your headache."

"Ah. Indeed. But— "

"But, by dear fellow, you never had headaches like this before,"

"I should say not. What happened to me, anyway?"

"You were poisoned, that's all."

"Poisoned!"

"Literally. Poisoned by radiation let loose in your bedroom, where you were quite alone; poisoned by the marquis, our little friend, who seems to be taking active measures. Your wife didn't have a headache?"

"No she got up an hour before I did."

"Well, that's what saved her. And if you had not come down to the office— "

Gribal grew pale.

"Will it happen again do you think?"

"We shall see. The other day, I just missed killing myself. This morning you just missed dying. I just managed to save you. But it's all right now. The danger is over."

"For the time being."

"Yes, for the time being. But it was really my fault that you were in danger at all."

"Oh, come."

"Certainly. I've been working in the main laboratory as you know, and so didn't want to have on me the little apparatus with the buzzer that warns of the presence of unknown forms of radiation. That's how it happened the other day that I wasn't warned of the attack on me—or rather, on my chair. And for the same reason, not having one of these revelators at your house, Gribal, you were not warned this morning that you were in danger."

"Doubtless. But how is that your fault?"

"You should have one of these revelators with you all the time. And take Paulette into the secret, too. Your wife and Roger can think that it's some queer kind of watch which strikes the hour. I only hope they don't try to wind it up. And you, whenever you hear it, no matter where you are or for what, go away from there fast. You will be in real danger. And now Gribal, let's get busy. We must make one of these revelators for you; better make another for Paulette."

"But if he invades this laboratory with his radiations?"

"He can't. I have set up a barrage-curtain of counter radiation."

And Mazelier pointed to the sphere:

"There's our defense-machine. Always on the job. Unfortunately, I can't extend the curtain to cover us when we get out of these four walls."

"And won't the Chinaman come back?"

"Certainly not. Oh, for that, he will hardly try; he will know that we will be on guard. But if he does get in, he won't get out again alive. That's why only you and I are permitted to come in here. But wait, Gribal, I must show you; it's possible you will have to get in some day without me. I'll show you how to do it. Look here— "

Mazelier rose and opened the door of the inner laboratory.

"You see the key-hole? And the glass plates above and below? Well, when I go out, I press on this place here, which is attached to the upper plate. Before going in again, I press on the lower place. That's all, but you mustn't forget. Do you understand?"

"I think I see," said the engineer, "pressing on the upper button actuates a curtain of deadly radiation; the second stops the generator and permits one to go in."

Right, Gribal. And note that the buttons are hidden under the form of the screws that hold the glass plates. I defy Saint-Imier or any of his assistants to find them. But you see—in the whole wide world, we have only this one place that is absolutely safe. But admit that you thought me crazy in doing so much work on the doors of my inner laboratory."

"Chief," said the engineer with a smile, "you know very well that a good soldier obeys without asking questions. We are now engaged in a war; I am a soldier."

"Admirable, my friend. The more so, since like a good soldier, you carry out all orders to the letter, even when you don't understand them."

As he spoke, Mazelier had been working over a watch-case, in which he was installing a tiny apparatus.

"Your revelator will be ready tomorrow. I will still have to put something into it which I don't have at the moment. I hope only that I won't be interrupted tonight in my work."

"Do you think he's going to invade your house too?"

"Anywhere, I repeat, he will follow us anywhere."

"But," demanded Gribal suddenly, "can't we send him the same kind of a visiting card?"

Mazelier shook his head.

"Do you think I haven't thought of that? Unfortunately, before I can do that—you see, I might make any number of innocent victims. The apparatus for attack waves, which I have been developing as well as he, is not yet refined enough to enable me to concentrate on a point like that. I must be able to direct the wave action where I wish and they must act nowhere but on that spot."

And Mazelier went on, with a cold fury that astonished his companion:

"On the day I find out how to do that, we can be at rest, for I swear I will not hesitate."

"But he has attack waves, and is not hesitating to use them, whether he can control them or not!"

"Doubtless. But he is a criminal. I wonder how many innocent people he struck down this morning, trying to reach you? Or how many other accidents he caused the other day, trying to cause one for me? Ah, the monster!"

And coming back to the idea that obsessed him, Mazelier went on:

"But how was he able to see?—For he did see, Gribal! How did he know the exact placing of my chair and your bed. I must know or lose the game!"

● Paulette was not an athletic young woman. Nevertheless she had been an enthusiastic bicyclist since her fifteenth year, fearless even of the Paris traffic, amid which she maneuvred with an agility and cleverness worthy of a professional. She managed her wheeled steed with a gay carelessness that nearly gave Mme. Gribal tremors, but which Roger found the most natural thing in the world.

On this particular day, returning from the university, Paulette noticed of herself that she was distracted. People often ask what young girls think about; this one on a bicycle, thought about dodging buses, automobiles and pedestrians, not counting the new high-speed "motos" that whizzed through the streets like meteors.

A traffic jam brought Paulette to a halt at the Pont de la Concorde. The Boulevard Saint-Germain, as far back as the Ministry of Foreign Affairs, was packed with vehicles, and the tumult of their horns was infernal. But there was nothing to do but wait till the police untangled the mess. Mechanically Paulette looked around her.

All at once, she gave a little "Ah!" of surprise. Quite close to her, separated only by a taxi a huge auto had halted. Paulette's gaze fell on the chauffeur, who was quite exceptionally unhandsome. Buck teeth, slanting eyes, mouth that reached from ear to ear. Paulette expressed it to herself, "Where in the world did they dig up that Chinese gorilla?"

Naturally, the young girl's curiosity extended from the chauffeur to the proprietor of the car, and as she looked at him Paulette could not restrain an exclamation of astonishment. She recognized him; it was the Marquis de Saint Imier. She had seen him only once before and then for hardly five minutes, but she would have recognized him a thousand years after, so forcibly had his features been imprinted on her memory by the circumstances. She looked at him almost fascinated as he lounged among the cushions of his car, disdainful and haughty, not considering the sights of the street worthy of a glance.

Had he seen and recognized Paulette Gribal? It was not at all probable. In any case, there was not a movement, not a change in his face to indicate that he had. The girl only saw him pick up the end of the speaking tube and give some order to the chauffeur. And then it seemed to Paulette that the "Chinese Gorilla" was looking at her attentively, but out of the corner of his eye. She shivered; then the policeman blew his whistles and the line of vehicles began to trail across the Pont de la Concorde.

As she emerged from the bridge an open space was before her; she had to turn to the left to reach the route to Marly, and prudently looked around. On her right a street-car was coming down the Quai; straight ahead, the autos coming from the other direction were still at some distance; on her left the Cours-la-Reine was quite empty. Paulette turned into the open without the lest apprehension.

She had not covered twenty yards when she felt herself suddenly lifted from the ground, then turned round and then—It lasted only a split second, but it was like a century, and it was enough for Paulette to recognize that she had been hit from behind by an auto, and that in another fraction of a second she would be rolling with her wrecked bicycle beneath the wheels of the car. She saw herself dying; and then in the third fraction of a second was astonished to find herself on her feet and in the arms of a young man who was asking respectfully:

"Are you hurt, mademoiselle?"

She replied: "Of course not," as though the question had been "Have you a cold?"

Then, suddenly recognizing that she had been miraculously saved from certain death, she cried:

"Oh! Why it's you, Monsieur Duplay."

She was hardly astonished to see him there, for she had met him frequently of late, at her father's office or just near it. Roland Duplay, who had proved a research student of the first order, had been admitted to a considerable degree of intimacy by Gribal. Mme. Gribal found him altogether sympathetic, and he had been a caller at the house, where he had told the story of his life's struggle.

His parents had been in business and had sent him to the best technical schools. Then came a change in the family's fortunes, and Roland found himself obliged to abandon his education. He worked; he became an electrician. By means of his labors he procured the funds to buy books and continue that pursuit of pure science which alone could lead him to the fulfillment of his ambitions. And finally his dreams were realized; he had received the powerful protection of Mazelier and Gribal.

His dreams? Perhaps he had other dreams when Paulette shared the lessons which Gribal was giving him. And it was with delight that he had accepted the commission of watching over the girl; from a discreet distance naturally, in a way that she should not suspect. Gribal was anxious; Mazelier had told him to expect anything at all from the marquis. They had been right. But Saint-Imier did not even know of Duplay's existence.

Paulette, on her part, found it neither surprising nor disagreeable that he should be on hand.

"Your poor bicycle," said Roland. "It's in fragments."

The news had a sigular effect on Paulette. For the first time she became fully conscious of the fact that it was by a miracle that she had escaped being crushed under the auto, and in the same moment remembered that before the shock, she had recognized the Chinese at the wheel. And if Duplay had not been on hand to catch her, she would have gone under the wheels. She experienced a shiver of retrospective terror.

Nevertheless, she gathered herself together, not wishing her mother to know how narrow an escape she had. To get home now, that was her only desire.

● Roland Duplay guessed at her desire. As the crowd of curious persons began to collect and the policeman on duty advanced, thumbing his notebook, the pair were already on their way up the street leading to the Champs-Elysees, and beyond the reach of official inquiry.

They went rapidly as far as the Crystal Palace. There, seated on a park bench where no one would pay any attention to them, they consulted.

Roland was overwhelmed.

"You're more scared than I am!" accused Paulette.

"I admit it."

"Nevertheless, that didn't keep you from saving my life. You pulled me to the left just as I was toppling under the wheels of that car."

"I was lucky enough to be there in time," said the young workman, blushing.

"Tell me, did you have the impression that the accident was . . . on purpose?"

Roland murmured:

"It isn't an impression; it's a certainty."

"Then that man is a criminal."

Roland did not answer. But he made an affirmative movement with his head.

"What have I done that he should hate me and wish to kill me? Do you know?"

"It isn't because of you yourself. He's aiming at your father and M. Mazelier."

"But why?"

Roland spoke out clearly:

"Because that man is afraid of them. And he's afraid of them because they are stronger than he is."

All at once Paulette perceived something. Her father had bound her to secrecy on the subject of the incidents at the ministerial reception. Now, Roland Duplay evidently knew both the name of the marquis and the part he was playing in the drama in which all of them were engaged. But how had he acquired this information?

In answer to her question, the young man did not hesitate to tell her the story of the day of darkness.

"Good," said Paulette, when he had finished, "then we are accomplices."

She was no longer frightened. A combat was begun, and she was now as much engaged in it as anyone; it amused her to think of herself as a soldier. And moreover, she realized that she had a friend and helper in Roland. She held out her hand to him.

"Thank you a thousand times. Till tomorrow, then?"

"I will try to come. M. Gribal is so good to me."

"And you also, you have been good to me. Come tomorrow, and you will see what beautiful lies I can tell. Naturally I don't want mother to know anything about this, she would worry too much. But father, that's something else again. I'll tell him first thing."

Paulette, entering the house, had her explanation ready:

"Mother!" she cried with all the gaiety with which one would announce a piece of very good news, "do you know, I've lost my bike."

"Oh yes, I knew you'd forget it some day," said Mme. Gribal.

"But I think someone must have stolen it."

Mme. Gribal could not avoid noticing the exuberance of her daughter, her rapid and joyous gestures, as though she were possessed of some happy secret.

"My word," she said, "anyone would think it was a pleasure for you to lose it."

This simple observation left Paulette a little confused; she did not know what to answer. But Roger, without realizing it, saved her face for her:

"She ought to be happy about it, mother. If someone swiped that old bike of hers, she'll have to have a new one."

But Paulette was blushing, for she had discovered the cause of her joyous feeling. It was because the loss of the bicycle had been compensated by the gain of an admirer.

CHAPTER X

They Try a Disguise

● The next morning Gribal, who had been informed of the details of the adventure through which his daughter had passed, recounted them to Mazelier. The scientist, when he himself was the object of attack, was accustomed to oppose an unruffled calm to the frown of Fate. But this time he gave full rein to his anger. Their opponent had descended to attacks on young girls—nothing equalled the atrocity of such an attempt except perhaps its cowardice.

Mazelier said:

"I wonder what one would find in the past of this man if we could pry into it. Well, we must get busy, Gribal. I have been delaying too long. Let us attack from our side."

Mazelier was really furious. Let the marquis attack him if he wished, him an old man, and without family—that was a matter of no importance. When Gribal became an object of attack, it was already a little too much. But Paulette, so intelligent and so cheerful, who seemed destined one day to be a genuine collaborator in the researches of the laboratory; Paulette, in the springtime of her life, who deserved so clearly to be happy; Paulette, whom Mazelier loved like one of his own daughters—that was intolerable! The punishment ought to be made to follow the crime with the rapidity of lightning.

"I can strike," said Mazelier, "and I will strike."

But one had to be sure of one's blow. And another

difficulty—Mazelier stoutly refused to take any step that might make innocent victims. The forms of radiation he was about to liberate must be made to go straight to their target with the precision of a bullet aimed by an expert marksman. For all those who were even touched by these terrible rays would never recover, even from the simple contact.

"First we must try to find out where we can most easily strike at the animal. Then, Gribal, we will go for him, taking precautions which I trust will be sufficient. I will punish him without remorse, but I would never forgive myself if I made other victims."

"Not even the chauffeur?"

Mazelier hesitated:

"He's only an instrument," he offered.

"Oh, come. He's an accomplice. Saint-Imier gave him the order to run down Paulette, but the chauffeur did not hesitate to do it."

"You are right," said Mazelier reflectively. He went on: "What would you say if we could strike them together?"

"That it would be justice. But how are you going to do it?"

"Look. We don't know anything about the interior arrangements at the marquis' house. In what room does he live? Where is his secret laboratory, the place where he has perhaps discovered new laws in physics of which I am ignorant? Where does he sleep? We can't do anything against him, under the conditions, without striking at some poor folks around him who are in ignorance of what their master is doing."

"Evidently."

"But suppose—yes, suppose that Saint-Imier gets into his car, driven by that horrible Chinaman. If we could be certain that at a given moment he would pass a certain point, I believe, Gribal, that we could do justice to him. Look, that idea is much more practical than the one of getting at him where he lives; much better than my previous project."

"What was your previous project, chief?" inquired Gribal, curiously.

"I was going to direct against him radiation that has a terrible effect. They cause the flesh itself to rot, by disintegrating the cellular structure, but the individual subjected to them would doubtless live on for several weeks, the prey of the most acute agonies. They do not kill, you understand; on the contrary, they cause the processes of life to be speeded up. But while the individual who is subjected to them seems to be in the most excellent health, his body is rotting until the day when he becomes nothing more than a skeleton covered with skin. Then—"

"But this radiation," murmured Gribal, "doesn't the marquis know about its effects?"

"No, my friend. He certainly does not know about this form. For if he did we would now be rotting, both of us. No, this form of radiation is known to me alone. And you wish to know how I know their effects. Well, do you remember Sully Tavernier?"

"That young pupil of Henri Poincare, with so much talent, who committed suicide after disappearing from Paris so mysteriously?"

"Poor Tavernier! It was he who discovered this form of radiation, Gribal. By chance, in the course of an experiment—and they bit him. He suffered frightfully—even beyond the limits which imagination can give to pain. He told me about the discovery that was killing him, making me promise never to make the secret public. And then he made his young wife shoot him through the head. She did it, for pity's sake—and then she went insane, Gribal."

"Horrible. My God!"

"What would you have?" said Mazelier, melancholically. "That's the risk we all take in this kind of research. Well, anyway, you see what I was going to do. For this Tavernier radiation, with my apparatus I can project it to a distance, and I hope, concentrate it on a point. But I doubt whether I could do it without striking innocent people, and that is a thing I will never do."

"And I approved," declared Gribal, "but what do you intend to do now?"

"To apply the *lex talionis*," answered the scientist. "He tried to kill Paulette through an auto accident; well, we will give him an auto accident. And we will see whether he escapes as easily as your daughter."

● There was a moment's silence between the two, interrupted by a remark from Gribal: "May I make a request?"

"What is it?"

"If I understand you aright, you intend to wreck the marquis' car while it is going at full speed."

"Something like that, Gribal."

"And you can produce the accident from here, seated in your chair?"

"Certainly."

"Without the slightest risk?"

"Without the slightest."

"Well then, let me do it instead of you."

Mazelier gave him a sudden glance of illumination.

"I understand, Gribal," he said. "Yes, the idea which you did not formulate in words has come to me too. I am fighting a scoundrel by rather scoundrelly means. And you think that I, Mazelier, who has nothing on his old conscience, ought not to descend to the level of a criminal, even to chastise a crime; you fear the effect on my tender sensibilities. Have I guessed it?"

"Chief, I think it is our duty to bring down this bandit. But since we cannot do it in public and under the forms of law and honesty, I beg you to let me take your place. It would be unworthy of you but my position is different; I can take the responsibility. I am the father of the child he tried to kill; that gives me rights you do not possess. And besides, if it comes out, I am only Gribal. While you, you are Mazelier! Your name must remain irreproachable."

The scientist shrugged his shoulders.

"You talk like a boy, my friend. Your scruples are very fine and even refined, but I avow that I see nothing in them whatever. You yourself have made the point that my name is irreproachable. And do you think that an irreproachable man would be so easily dishonored by employing against a man capable of any crime the only means that would really bring him to book? Run along, Gribal, go to the police station and make a formal complaint against Saint-Imier for having tried to assassinate your daughter, and see whether the complaint will not be turned against you. You were speaking of justice a few minutes ago; well, go try the official means of justice. The marquis will be delighted, I assure you!"

Gribal felt the force of his remarks. But in spite of them, he hesitated, and Mazelier perceived it. The scientist went on, interested by this exaggerated case of tender conscience.

"My friend, remember that it is a case of life and death, not only for us two, but for your family. Remember that I would prefer, like you, to take the matter up with the authorities, and that I would not hesitate for a moment to denounce the marquis, if it were not evident in a hundred ways that in doing it, I would be playing right into his hands."

"Ye—es," said Gribal. "I suppose I should not make so much talk about the means chosen to shoot a mad dog. The marquis, if he is not outside the law, is at least outside humanity."

"Why certainly! The only thing we can do is level all our artillery against him. And that brings up some problems."

"Yes. We must know, first, when the marquis will make a long trip in his car; second, what road he will take, and third, what time he will leave, his probable speed and the probable moment he will reach the chosen point. Right?"

"You have stated the problem admirably. But one of the pieces of information we already have, to wit, the speed of the car. The marquis always travels at 50 miles an hour on the open road. His chauffeur is really very skilful. M. Perignon, who has traveled with him not a few times, has informed me on that point."

"Good. But how are we to find out the rest?"

Mazelier was embarrassed. All at once Gribal saw him run to the window of the laboratory which looked out on the Rue de la Boetie and fling it wide open. A sonorous voice floated up from the street:

"Ol, clo's! I cash ol' clo's."

Mazelier leaned out.

"Hey, there!"

The old clothes merchant lifted his head. Mazelier motioned to him to come up.

"What!" Gribal, stupefied, "are you going to sell some clothes?"

Mazelier laughed:

"Just the opposite! I'm going to buy."

The engineer, curious though he was, did not dare to ask questions before the old clothes man, who had now entered the laboratory, a pile of hats on his head, and the picturesque cloak of old garments flung over his shoulder.

"Wanna sell something?" he asked, a trifle suspiciously, gazing around the laboratory open-mouthed.

Mazelier was so self-effacing, his natural air was so modest, that the merchant selected Gribal, tall, strong and with the visage of a leader, as the man to whom he should address himself. But Gribal said not a word. He looked toward Mazelier, who began:

"We haven't anything to sell you. But we might like to buy."

"But," objected the merchant, "I haven't anything new."

"Exactly. What we want are some second-hand clothes. Let's see what you've got."

The man spread out his packet, his face lighting at the prospect of doing business. There were workmen's smocks, ragged and stained with rain; old trousers which no doubt knew by heart the names of all the streets of Paris; a few dirty old collars, ties without energy or prestige, and a few other articles that he had the nerve to offer, in his regular patter, as "the very latest models from the fashionable houses on the Boulevard."

● Mazelier calmly picked here and there among them, regarding each garment attentively, and calming offering half the price the man demanded. The offer, after a moment's haggling, was accepted. The seller left, convinced that he was dealing with two men who were quite utterly insane, and promising himself to come back at the earliest occasion to take fuller advantage of their lunacy.

At last Gribal was free to ask:

"What the devil do you mean to do with that truck?"

"Try them on, of course! I hope they will fit us."

"What! You want—"

"Yes. I want you to go with me for a little walk near the Rue Cortambert. And for such a walk, it would hardly be a good thing to dress in new morning coats. Look, this ought to be about your size."

"It's frightfully dirty," said Gribal with a shudder. "Well, since we have to . . ."

"Ah, you understand?"

"I think so. We'll have to dirty ourselves up a bit."

"I assure you that it is indispensable."

When their curious toilet was done Gribal gave a cry of astonishment to which Mazelier replied with a satisfied grunt. They were completely unrecognizable.

"What in the world do we look like, anyway?" inquired the engineer, more amused than disturbed by the adventure.

"We ought to look like what we are," said the scientist, "that is a pair of bookkeepers out of work. We're dirty, but respectable. It's a terrible thing not to have a job! Well, let's go eat all the same."

"In the Rue Cortambert?"

"Where else? I noticed a little restaurant there. All the chauffeurs of the quarter take their meals at it. The roast beef must be something wonderful."

"Is it near the marquis' house?"

Mazelier dropped the joking tone in which he had been speaking:

"It's right across the street."

"We'll be in the lion's jaws."

"Yes, but they won't close on us. He'll never imagine we are so close."

"All right," said Gribal, with another glance at his companion: "We certainly look like a fine pair of birds. We mustn't let Father Bibent see us like this, though. Our reputation would be ruined."

Mazelier shrugged his shoulders:

"Decidedly, Gribal, you would never do for a conspirator! Come along and take your first lesson in camouflage."

"Ah!" said Gribal, in enthusiasm, "you are the limit, my dear chief. I never imagined that you were such a Sherlock Holmes."

Mazelier made no reply to this compliment, but opened a little cabinet in the corner of the laboratory where various chemicals were kept, for the most part alkaloids newly developed and still under investigation. From this group of choice poisons, the scientist chose a little bottle:

"Listen, Gribal, we ought to perfume ourselves a little.

That will make up for the lack of clean linens. What do you say to this attar of roses?"

Uncorking the bottle, Mazelier held it under Gribal's nose, then sniffed at it himself.

"Parbleu!" said the engineer, "I would say that your attar of roses smelled rather more like a fish that had been around for some time. Eh! but my voice has changed. What a curious impression. I don't recognize myself any more."

Mazelier replied, in a voice equally unrecognizable:

"Isn't that a swell perfume—capable of changing a bass into a soprano with a turn of the hand? Our larynxes will keep the impression for a couple of hours at least. All ready, Gribal?"

"Let's go, Monsieur Mazelier."

As they passed Bibent's lodge, the old man's head popped out:

"Where are you going?" he asked.

"We're translators. Official diplomas. And we're looking for some work," offered Mazelier.

"But there isn't any in this madhouse of yours," added Gribal.

"Yeah? Well run along and do your translating before I give you something you won't be able to translate," answered the concierge angrily. "Translators, indeed, with pants like that!"

"Well?" inquired Mazelier, when they had attained the avenue.

"Wonderful! The experiment is a success. Too bad we haven't more time; I'd take a run home to see whether they recognized me there. What a voice you have given me, chief! The voice of a siren—but the siren of a tugboat!"

"And me? Would you recognize this rattle?"

Gribal was filled with confidence. At last, the long nightmare of terror was about to have an end. Nobody would have to worry any longer about the threats of the strange bandit whose social position rendered him so immune to the ordinary methods of attack. Mazelier was right; he would have to be struck as with the hammer of God, unforseen, almost treacherously, and without pity.

CHAPTER XI

Exposed!

● The engineer and the scientist were seated before a table in the little restaurant in the Rue Cortambert, looking at the dinner usually given to clients who had large appetites and small purses. They honored the repast without repugnance. They were silent, maintaining the air of men intimidated and humbled by fate. Gribal had his back to the window, and could see, in a mirror facing him, a little of what was going on in the street outside; Mazelier was so placed as to miss nothing of what went on in front of the Saint-Imier mansion.

Such a vigil was capable of lasting a long time without producing any particular result. But Mazelier was patient. He felt sure he would sooner or later make the acquaintance of some member of Saint-Imier's staff and draw interesting information. Neither he nor Gribal had the slightest fear of recognition. Only Saint-Imier himself might possibly be capable of penetrating their disguise, but certainly he would never set foot in such a restaurant.

"This is a good place," said Mazelier aloud for the benefit of the others around them. "We ought to come here again. Ah, if we could only find a job in this section of the town!"

"We can try," said Gribal, entering into the spirit of the occasion.

And in the high, sharp voice which he now used without effort, he added:

"You, you're a stenographer; you ought to be able to find a job in some big house around here."

A chubby-looking chauffeur at an adjoining table, overhearing the remark, as he was intended to, glanced them over rapidly with the penetrating eye of the Parisian workman, who can so quickly take the measure of a man. His examination apparently had a favorable result; Mazelier particularly made upon him the impression of a good old chap who was bearing up with dignity under undeserved misfortune.

Poor old man! his shoulders were rounded, his chest pinched, his thin face and cracked and rattling voice bore the marks of incipient tuberculosis. He was evidently incapable of such feats as piloting a taxi from Montmartre to Vaugirard without missing a single turn or drawing a rebuke from a policeman.

The chubby chauffeur turned a protective glance on Mazelier: "Well, what's the matter, things not so good?" he asked in a sympathetic tone.

"They could be better," Mazelier avowed.

"No use kicking, though," said Gribal, adding after a moment: "Just the same, it isn't because we don't want to work."

"Nor because you don't want to eat either," observed the chauffeur, with a burst of laughter.

"True for you," answered Gribal.

"Certainly," said the chauffeur, "what do they take us for anyway—cows that can eat straw? That's always the way. But what do you do when you have anything to do?"

"We are bookkeepers," replied Mazelier.

"Yes," agreed Gribal, "but we were even better than that at one time, weren't we Martin?"

Mazelier understood that the name of Martin fitted him like the paper on the wall.

"Ah!" he sighed, "much better. When I remember that I was once the stenographer for the Chamber of Deputies—"

The chauffeur opened his eyes to their full extent:

"Not really? And the deputies, they let you go unemployed like this? That's not decent. I know a little about them on my own hook, me. That astonishes you, no? But I know how to speak in public. When the elections come around, the deputy from our district is right on my trail asking me to help him every time. And when I go to see him and ask him for some little favor, you know what he does? Let's me gather moss waiting in his outer office!"

He emptied his glass with a noble gesture and went on: "You look all right, monsieur Martin. If you'd like me to, I'll look around for something for you."

"Get back my job at the Chamber, for example? I've grown older since those days."

"Of course. Of course. I understand, the old hand isn't as supple—I suppose one has to go like lightning to keep up with the remarks of those johnnies. But, as your friend was mentioning a minute back, you could still hold a job in one of these houses around here."

"Oh yes, I think he could do that all right," replied Gribal.

The chauffeur regarded Mazelier with a sagacious air:

"You must have an education, now? Yes, I know, you know how to do almost anything except find a job. I know. I have a cousin who is taking a course in pharmacy, and he hasn't found a job yet. He'd have died of hunger long ago, if he hadn't got him a job on the railroad. And he's really educated, too; he knows the names of more than fifty laxatives. And he can reel them all off in Latin!"

● Mazelier gravely lifted his head:

"That's wonderful," he approved.

"Yes, but what use is it to him? Well, it's not quite the same thing with you is it? Well, I'll see—you're looking for a secretary's job, in some fashionable house? huh? I know quite a few people in the fashionable world, me. Secretary to a dancer from the Opera, that would hardly do. You're not well enough turned out—oh, nothing personal you understand. I'll find it though. You see."

Mazelier was only giving a minimum of attention to the rambling assurances of his new-found protector. All at once the chauffeur began to gesticulate, lifting his arms in the air.

"Hey! Over here. Come on over, you, I want to say something to you."

A woman had just entered the restaurant and was threading her way among the tables toward the bar. Gribal turned his head mechanically to see the newcomer, and then became as petrified as though he had seen Medusa and both her sisters. It was not the Medusa who was ordering a vermouth-cassis at the bar; the woman in the Breton bonnet had nothing terrifying in her aspect. But Gribal recognized the former maid, Suzie Kerdel!

"Hey, you from Brittany," called the chauffeur, "bring your drink over here, and we'll buy you another one if you're nice."

And when the Bretonne, enchanted with the offer brought her glass over and seated herself by the chauffeur, the latter continued: "We'll even buy you a couple, if you'll help us out."

Gribal kicked Mazelier significantly under the table. But he might have spared himself the trouble; the scientiest had recognized at once the woman for whom the police had searched in vain.

The situation was becoming more complicated than the engineer had forseen. He busied himself with his plate, and Mazelier imitated him. Would their rashness be turned on them after all? What would happen if the Bretonne recognized them and announced their real station in life in that rough crowd?

Suzie began by swallowing her vermouth-cassis at a single gulp. Then she said: "Ah, but I'm in a hurry today. I must pack the trunks for this evening."

"Your boss going away?"

"I'll say so! Leaving this evening for Biarritz."

"With the Chink?"

"Who else would he go with?"

"Of course, of course. Well, one has to admit it; there are damn few chauffeurs like that one. He knows how to handle a wheel. Biarritz, you say? He'll make it in eight hours."

"That," said Suzie, "is their business. Is that all you got me over here for?"

And she glanced at her empty glass. The chauffeur understood.

"What will you have with us, little one?"

"Oh, a snifter of curacao to start with," said Suzie.

Gribal, dumbfounded, did not move. Mazelier tried to keep his self-possession by cutting up a piece of meat into tiny morsels with great care. Suzie paid no attention to them. She went on:

"What was it you were going to ask me? Hurry up; I tell you I've got to get away."

The chauffeur pointed to Mazelier, who, keeping up his role, replied: "It's about me, madame, if you would be so good—"

"If I would be so good—?"

He played to perfection the part of one of those timid old people always asking for help, but always hesitating and bashful about asking.

"This good man has a regular education," declared the chauffeur, with authority. "Would you consider speaking to your boss about him? You have been there long enough, he ought to have some confidence in you. And he is rich enough to hire a good secretary."

"A secretary?"

"Yes, someone who will do his letters for him. Your marquis writes plenty of letters, doesn't he?"

"That is, he has someone write them for him," observed Suzie.

"Exactly. Rich people like that don't do anything for themselves. Well, you'll do it then? You'll speak for M. Martin?"

Suzie repeated slowly:

"M. Martin?"

"I live in the Rue d'Arcole," declared Mazelier.

"Good. Write it for me on a piece of paper, will you? When monsieur comes back from Biarritz I'll bring it to his attention."

The chauffeur threw a triumphant wink in Mazelier's direction:

"Well, papa Martin," he said familiarly, "you see how it works?"

Papa Martin was so much touched that he brushed away a tear.

"Ah, Madame," he cried effusively, "what will you have to drink?"

It was the best means of thanking her.

"This time it will be a little cognac," replied Suzie.

Gribal stifled an exclamation of horror and surprise. This was his model servant, so faithful, so punctual, so temperate, who only rarely, and upon being urged, accepted a little beer or cold tea at his house. What an actress she had been while preparing the way for her theft.

And what was still more incredible, but undoubtedly true, she had not the air of having recognized her former employer.

● All at once Suzie looked at Mazelier and began to laugh. The scientist and the engineer were shaken with a single shiver of terror.

"Fortunately," said the Bretonne, "you want a job as a steno and not a singer. Because you have a voice that would kill mice. When I get you the job at our house,

don't come into the kitchen. The sound of that voice would curdle the milk."

And she rose to go. The chauffeur still plied her with questions:

"You won't have time to say anything to the marquis right away, now that papa Martin is here?"

"Oh, I couldn't do a thing for two weeks yet," said Suzie. "Monsieur is leaving at nine o'clock. And it's already a quarter to seven. I must go. So long!"

"So long, my dear," replied the chauffeur, gallantly.

Mazelier, in a tone of emotion, tried to express the depth of his gratitude.

"Madame, I am your servant for life."

"What a lovely remark, and what a musical voice," laughed Suzie.

And she added: "I know. When someone gets married they can have you sing serenades."

And she left on this note of mild pleasantry, to the great relief of her former employer, who had never believed himself well disguised.

Three quarters of an hour later Mazelier and Gribal were back at the office. As their normal voices had returned, they had only to sing out as they entered:

"Good evening, father Bibent!"

And the good fellow replied:

"Good evening, monsieur Mazelier. Good evening, monsieur Gribal."

He did not come out of his lodge to watch them go up, unsuspecting the singular spectacle he had missed. But ten minutes later the engineer and the scientist, dressed in their normal fashion, were ready to meet any eye.

"Do you know?" said Gribal, "I was uncomfortable."

"True," said Mazelier pensively, "I had hardly foreseen such an encounter."

"And the chauffeur who mixed in our affairs to get us the protection of that female, that drunkard. And me, I confided the keys of my cellar to her!"

"Did she ever take anything?"

"*Parbleu*, no! She stole nothing but my documents. But there is no longer any doubt possible, she is one of the marquis' creatures. The important thing is that she did not recognize us."

"Are you certain?"

"What!" cried Gribal, to whom that simple question was like a draft of ice-water on his enthusiasm, "you think that—"

"My friend, I think that woman was quite capable of acting a part for fifteen minutes, after having acted one for a year."

"True," said Gribal, discouraged. "But what shall we do?"

"Do the impossible," replied Mazelier.

At the same moment the bell of the door rang.

"Who's calling on us at this hour?" said Gribal. "Don't get up, chief. I'll see."

"Be careful."

"No fear."

A moment later Gribal was back.

"It was only father Bibent," he announced. "He brought up a note that someone left to be delivered to you."

And Gribal held out an envelope with Mazelier's address upon it. The other tore it open:

"Doubtless a card—ha! Gribal, it was he! Read, read what he wrote."

And he held out to his companion a correspondence card upon which beneath the Saint-Imier coat of arms, appeared in a handwriting at once elegant and vigorous the following words:

"M. Martin may rest assured that I will find a situation for him in which he will be treated as he deserves."

For the first time the marquis had threatened Mazelier directly and in person. The masks were down, the two adversaries now in open combat.

This bothered Gribal, who was, moreover, affected by so rapid a check to their little plan. But the scientist remained calm.

"*Parbleu!*" he said, "really I like that better. You can no longer reproach me with wishing to stab him in the back. Our clumsiness, or rather our rashness, has brought a good result after all."

"You will not abandon the attempt?"

"Less than ever. The marquis tried a collective crime against the world; it did not succeed, but the fact remains that he tried, and this gives anyone in the human species the right to suppress him. Moreover, he has committed against you two crimes under the common law; he stole something from you and tried to kill your daughter. This gives us the right—no, this confers upon us the duty, to defend ourselves. And the best defense is an attack."

"But he'll be on his guard now, won't he?"

"I don't think he'll believe we are going to make an attack on him during his journey, and that's just what we are going to do."

"And if he goes by another route?"

"We will know it."

"But we can't follow him."

"I beg your pardon. Without leaving this office, we will take up his trail. For the first time, I am going to apply my newest apparatus; that for which he stole the notes, to a particular case. It's about eight now, isn't it? At a quarter to ten, Gribal, turn this little lever here to the left, two centimeters on the scale. That will do the job."

As he spoke, Mazelier indicated one of the maze of attachments leading off from the enormous sphere which replaced the one the Chinese had gotten away with.

"Now, let's get things in order," the scientist went on. "I must direct the concentration of radiation exactly on the point selected, insulate them during their journey, and halt them exactly at the point."

"Can you do it?"

"I hope so.

CHAPTER XII

To Biarritz

● Before the sphere on the table Mazelier set up a tripod upon which he mounted a box like a small self-contained radio receiving apparatus. But instead of the usual installation, with its bulbs, rheostat, condensers, the box contained nothing but a complex of prisms set at varying angles and a multiplex of lead-sheathed wires. Prisms and wires were detached and re-attached in different combinations, finally appearing at the base of the box in order of size, while on the table before them other prisms were connected up in the opposite order.

"You know, Gribal, that invisible and unsuspected

forms of radiation can, when concentrated, upset and confound everything that has been known, up to the present, as a law of nature. Since I have been experimenting in this field, I have become convinced that the so-called natural laws have no real existence. Does that scandalize you?"

"Yes, it does, I admit it. But you have already convinced me laws of nature are nothing but convenient conventions which give us some ground to work from while we are roaming in the prodigious field of phenomena nature presents."

"Right! One must admit that radiation has an existence of its own; the rays have caprices, angers, individual tastes and sympathies. They behave as they like; they do whatever they wish, and to use them one has only to find their preferences. They are comparable to certain people sitting down to dinner, who only eat the dishes they like. Now let's see whether I have succeeded in pleasing this lot. At least I have neglected nothing that ought to please them."

Mazelier closed the box, and attached to its cover another tripod with long sharp points. Then, he carefully turned the whole apparatus this way and that, pointing it in the direction of the Rue Cortambert with the aid of a map of Paris. Finally, he regulated one of the dials placed before the sphere.

"What time is it, Gribal?"

"Exactly half past eight."

"Good. We have plenty of time. Nothing will happen before nine o'clock."

"You think that the marquis will stick to his program of going out this evening?"

"I am altogether persuaded that the marquis will think me incapable not only of preventing, but even of defending myself against his attacks at present."

"Just the same he ought to remember that you have escaped him up to now."

"Yes, but his dispositions were not well taken, his apparatus far from complete. Even without my intervention something happened to upset his calculations. But remember what he accomplished that day last October. It was really prodigious."

"What! You still believe that that man is a genuine scientist?"

"Yes, and a scientist of genius."

"You astonish me. I take him for one of those clever amateurs like those courtly gentlemen who studied the structure of the atom under the Cardinal de Rohan in the time of Louis XVI while they were hunting for the philosopher's stone. But a genius—I rather doubt it. But tell me, about that note he sent you—?"

"Oh, I deserved that crack, my dear Gribal."

"All right, I don't want to argue with you about it. Anyhow, it's a declaration of war."

"It would seem like that."

"Then why is he running away to Biarritz after having threatened you?"

"And who told you he was running away? What time is it now?"

"Five to nine."

"It's time."

Mazelier pressed a button at the base of the box he had set up and bent over it, listening.

"Nothing yet. Wait a minute. Let me take your watch, Gribal. I am the limit; I completely forgot to wind up my own. Thanks. Four minutes to nine, three. Ah, listen. The marquis' chauffeur is starting up his motor."

A sort of soft purring, like the sound of water boiling in a teakettle, came from the great sphere.

"Do you hear?" inquired Mazelier, who could not conceal his nervousness. "Now watch my direction indicator. There, Gribal, the tripod on the box. It is suspended so that it can make a complete turn. Automatic, Gribal, it's automatic. Look, it's swinging to the left. Good—now a little to the right. Look, look, what a sharp swing to the right. The marquis must be about passing the Palais-Royal. What did I tell you? We can follow him wherever he goes. Ah, see, the tripod is pointing to the south. The marquis' car is headed for the Porte d'Orleans. He must be going to take the Estampes road. Good, good. Now he's slowing up. Ah, he's opened her out again, always in the same direction. Look, the dial indicates thirty kilometers and it's only a quarter after. We'll have to act sooner than we thought."

The purring from the sphere continued, synchronously, one would have sworn, with the sound of a big motor, powerful and regular. The direction indicator no longer wavered. It seemed to Gribal that he could hear the beating of his heart answered from the center of the shining sphere. What he was seeing, here in the midst of Paris, in the laboratory of a government establishment, did it not resemble some scene out of a book of medieval magic?

● Mazelier no longer busied himself over anything but the slow flight of the hands on the face of Gribal's watch. All at once, he cried out:

"Ready with the lever, there. I'm going to count to ten. At the tenth count, swing it to the left. One . . . Two . . . Three . . ."

The seconds went past with a desperate slowness; an effort of will-power was necessary for him to restrain himself from throwing the lever before the signal. After a century, it arrived.

"Ten!" said Mazelier.

Gribal swung the lever. And suddenly the sphere was silent; the tripod oscillated violently from left to right, then swung completely around and came to rest, pointing northward.

Pale with emotion, Gribal, not daring to say a word, held his breath. Mazelier, also, was paler than usual. But he consulted dial and sphere, and then in his grave, quiet scientist's voice, indifferent to the emotions that were stirring the engineer, he said:

"M. de Saint-Imier's auto has turned turtle on the Estampes road, fifty kilometers from Paris." And he added tranquilly: "Let's go along to bed, Gribal. Tomorrow morning the newspapers will tell us the rest."

On the next morning, as a matter of fact, nearly all the papers had on the first page an account of the mysterious accident that had occurred on the Estampes road, near Charamande. But after he had read the story, Gribal rubbed his eyes and then read it again, and leaped from his breakfast table to run to the office where he would find Mazelier.

The account ended in this fashion: "One of the most striking personalities in the fashionable world of Paris, especially well known in artistic circles, the Marquis de Saint-Imier, was the victim of an inexplicable accident

last evening. M. de Saint-Imier had left Paris at nine to go to Biarritz in his car, which was driven by his chauffeur, the Indo-Chinese Pou-Hi, an experienced driver who has been in his service for some time. While travelling at high speed near Chamarande on the Estampes road, about 50 kilometers from Paris the accident occurred.

"Police inquiry has established that the marquis' car was alone on the road at the time, and that it was without obstacles. All at once the car stopped short although the motor was still functioning perfectly and the tires were undamaged. There was a considerable shock and the car turned completely over, hurling M. de Saint-Imier and the chauffeur out. The latter has a broken arm and possible internal injuries. The marquis escaped with cuts and bruises.

"From declarations made to the police the accident remains completely inexplicable. An examination of the car, which was badly damaged, showed that the motor, tires and other running parts were without defects.

"Another auto passing the scene of the accident five minutes later, carried the chauffeur Pou-Hi to Estampes where he was placed in the hospital. M. de Saint-Imier, after having received medical treatment, was able to take the Bordeaux express and continue his journey to Biarritz, where he is to be the guest of M. Cuchillo, one of the most prominent members of the Argentine colony in France."

Gribal dashed into the laboratory, brandishing his newspaper.

"Did you see it, chief? Decidedly, these scoundrels have all the luck."

Mazelier smiled.

"Never mind, Gribal, be calm. You forget that we also have had our bits of luck. Remember that Pou-Hi didn't succeed in running down Paulette either."

"Yes. But you saw that the marquis alluded to some unknown force at the inquiry. Don't you think that remark was addressed to us?"

"There is not the slightest doubt of it."

"And don't you think he will try an answer?"

"It is highly probable."

"And that doesn't stir you?"

"No use being emotional about it, my friend."

"Right. But that leaves us in the position of a condemned man waiting for the executioner. How are we going to defend ourselves?"

"Always in the same way that has been successful in the past."

And without giving Gribal time to answer, Mazelier went on:

"It mentions a Senor Cuchillo, Gribal. Do you know that *caballero* by any chance?"

"Cuchillo? *Parbleu!* He's a big race-track man and has a chateau in Correze. And I believe he is the author of what they call the Cuchillo syllogism."

"Ah, a syllogism. What is it?"

"Well, it was at a banquet last year that the senor Cuchillo said something like this—There are plenty of sheep in the Argentine. Now with sheep, one can make wool. With wool, one can make tapestries. Therefore we have a tapestry industry in the Argentine."

"Not a bad piece of reasoning if one admits that wool is all there is needed for tapestries."

His chief's calm and humor succeeded in reassuring Gribal.

"Well, chief, what do we do next?"

The scientist replied: "Well, if you are willing, we will take a little trip. It will give us a change. Would you like to go with me?"

"Chief, you know very well, I would go with you to the end of the world."

"Take it easy, my friend, take it easy. The end of the world, that's quite a distance. And I can't leave for three days yet. So, in three days—"

"Yes," said Gribal, "a good deal can happen in three days."

"Things will happen, never doubt that. Then you will come?"

"And where will we be going?"

"To Biarritz," said Mazelier simply.

● It is evident that if the Marquis de Saint-Imier had not lived in the center of society, the newspapers would have been silent about his auto accident. The celebrated "unknown force" which alone could have stopped Pou-Hi's car did not arouse much curiosity, for the very good reason that no one believed in its existence. Everyone who knew the Chinese—and these were a considerable number in the Passy section—had very clear opinions on the subject; Pou-Hi was a two-fisted drinker, and though he was also a splendid chauffeur, there was some talk. But Pou-Hi was one of those silent drinkers whose potations seem to make them more careful and more skillful.

When one intends driving from Paris to Biarritz in a single night, one has need of an extraordinary degree of strength.

Pou-Hi had strengthened himself by means of glasses of whiskey, taken in company with Suzie. Nobody doubted that the "unknown force" was a force from inside the bottle. Pou-Hi, sobered by the force of the accident, had simply told his master a likely story, and the latter had pretended to believe him.

Therefore, nobody in Paris thought of the marquis any more, and Gribal was astonished to find the world very calm and very much inclined to mind its own business. The journey to Biarritz had to be held up; the scientist was having a series of interviews with the Minister of Science on the subject of the personnel of the office and its budget for the coming year.

But if Mazelier did not make his voyage, Mme. Grislaine Roberval took precisely the opposite decision at about the same time. Since the night when the fashionable world had seen her snub the marquis at the ministry, she had decided to marry M. Gabriel de Neuville, and she was distinctly worried. She knew the marquis for a man capable of terrible revenges, and was certain that he would avenge the slight somehow. But when? And how? This rich and beautiful woman, who had everything needed to make her happy, could not avoid melancholy presentiments. It seemed to her that once she was married again, she would be in considerably less danger.

Her fiancé certainly made no objections. But Mme. Roberval did not wish to be married at Paris. She feared some *contretemps* arranged by the marquis, some noisy scandal that he might bring up.

"But what do you expect him to do?" inquired de Neuville. "I will notify the prefect of police, my dear Ghislaine, and I assure you that we will be thoroughly protected against anything of the kind."

Mme. Roberval shook her head:

"No, Gabriel, no! We must not be married in Paris."

"But I must stay here for the present. I have been appointed secretary of this new international conference; the minister would never let me absent myself now."

"Try to accomplish the impossible, then. We must get away—to Italy or England."

"I would like nothing better. But I repeat, it is impossible. Besides, you know very well that the marquis is at Biarritz now."

"Are you certain that it is not only done to deceive us?"

"Oh, certainly. He is there all right, and very busy. The fashionable world is talking of nothing but his eccentricities there."

Mme. Roberval did not seem convinced. She did not know quite what she feared, and hardly wished to annoy her fiancé with nameless terrors.

What was she concealing? This: that in the voice of the loud speaker in the Place de l'Opera she also had recognized that of Saint-Imier! How could she confide to anyone, even her future husband, the terrors so vague that they seemed ill-founded which were stirring her? Neuville would certainly have laughed at her fright and remarked that the best loudspeakers deform the human voice to a greater or less extent. And after all, had the marquis succeeded in his effort? No. Had he tried again? No. The fact was that he seemed to have even abandoned his effort to pursue Mme. Roberval.

These arguments, which her spouse-to-be would certainly have advanced, were a long way from convincing Ghislaine. She was quite certain that the marquis had not in the least given up. And a strange thing had happened; she had seen him, in flesh and blood, following along the street, approaching as she went in the other direction, moving away when she approached, at the very moment when the society columns were publishing the news of her persecutor's being in another city and far away. The unhappy woman had arrived at the state of asking herself whether she were not the victim of hallucinations, but she confided her fears to no one.

Nevertheless, the day arrived when Gabriel de Neuville arrived with good news; the trip to Italy had become possible and with it a prolonged honeymoon. Mme. Roberval found her lost tranquility in the announcement. She felt sure that as soon as she had become Mme. de Neuville, she could arrange things so they would stay in Italy or somewhere else, anywhere else, provided it was not Paris.

Ghislaine was going to take the express to Vintimillia. Her fiancé would follow by auto and meet her at Nice. Naturally Gabriel de Neuville accompanied her to the station and saw her safely installed in her compartment. They stayed, chatting for a few minutes while the train prepared for its departure. After about twenty minutes de Neuville glanced at his watch.

"The express is late already, my dear. If this keeps up I'll be at Nice before you are."

He laughed, not really annoyed at a delay which permitted him several moments more of conversation with her. But suddenly, glancing out of the window, he noticed a singular stir in the station. It looked as though all the travelers were getting out of the train.

He got out with them and questioned:

"Breakdown somewhere. They're going to change locomotives. It will take at least 45 minutes. Take the express on the other track."

Neuville would have liked to ask more precise information, but the functionary had already disappeared, surrounded by a crowd of impatient passengers. The diplomat returned to Ghislaine and told her the news.

"Do you really believe that?" asked the young woman, incredulously.

"But . . . Anyhow, that's the official explanation."

"It won't hold water, my friend. You ought to know more than that about official reasons for things."

Mme. Roberval spoke in a joking tone, but a strange feeling of disquietude rose in her.

"A breakdown before the engine has even started!" she went on. "It's incredible. And that long to change locomotives. It's impossible. Well, let's change trains anyhow."

"I'll carry your bags. What a mob! It's odious."

The confusion was general, and everybody was talking at once. A voice arose, dominating the individual voices:

"The trains aren't running!"

Neuville, annoyed, grumbled:

"Ah, no, what are you telling us now? A joke, a little heavy, that joke. Why aren't the trains running? They arrived here, didn't they?"

But as a matter of fact there were several trains stalled in the station.

But one had to admit it; none of them were moving.

CHAPTER XIII

The Voice Again

● SOON the news was coming in from every station of Paris, the inexplicable, phenomenal news. The fact, quickly verified, was that for some reason, not a train was running. The incoming trains rumbled in as usual; but they stayed.

The travelers, after having delivered the usual noisy protests which such a situation might be expected to call forth, went home. A good many of them, like Mme. Roberval, did not give up their intention of traveling. If the trains were not moving, autos were. She, defying the conventions in this case of necessity, got into Neuville's car.

Neuville was delighted.

Unfortunately, when his comfortable car arrived near the city limits, he noted with annoyance, that he was preceded by an interminable jam of vehicles of all kinds and descriptions, vibrating solemnly with the running of their motors, but utterly immobile. It was the world's record traffic jam.

Their horns made an infernal concert of noise. In the midst of it, Ghislaine and de Neuville noticed an employee of the octroi running down the line, waving his arms and crying out something that nobody heard.

As he approached they heard him. "You can't get past!" he was shouting. "Autos and airplanes have been halted like the trains. Nobody has got out of the city for an hour."

This time, Ghislaine was frankly frightened, and Gabriel was powerless to comfort her. What was happening was not the effect of chance; all the autos, all the vehicles of Paris, brought to a stop, but only when they tried to get out of the city.

Somebody was stopping them at his own good pleasure.

And who was this somebody if not the individual mad with hate who had already sown abroad so much terror?

"I tell you it must be he!" insisted Ghislaine.

"My dear," replied Gabriel, tenderly, "don't be frightened. One lone man would certainly not be able to do so much. This is probably due to some curious cosmic perturbation which we will read all about in tomorow's newspapers."

Ghislaine shook her head but did not insist. All the same, the evident optimism of her fiancé reassured her a little, and she did not wish to destroy it. She kept her secrets to herself. But Gabriel secured her promise to see him in the morning, when they would go for a walk in the Bois and discuss the date of their marriage, which would take place at Paris since it could not be performed elsewhere.

But, that same evening in the capital where every inhabtant had found himself literally made a prisoner, and where the dumbfounded scientists were trying to explain the affair by means of scientific theories which they did not understand, the abhorred-voice again took possession of the radio.

It was during a lecture given by M. Reynier-Vitral on "the food of the future." The eminent chemist was developing the theme so often taken up and abandoned by successive generations of biologists that there is no such thing as life; the human animal being nothing but a machine, and that the best means of repairing the worn parts of this machine is not necessarily food as it is generally understood; that the stomach is not necessarily made to digest food, the teeth to bite it, or the palate to taste it; that everything can be expressed in the form of energy, and the energy the individual needs to recuperate himself can be furnished in the form of electrical currents of a certain character by special electrical machinery.

As the lecture was being delivered at the hour when most people had just finished well-rounded dinners, it amused them very much. M. Reynier-Vitral spread his theories before a sympathetic audience, and if he had been able to hear the comments of his auditors, he would no doubt have been surprised to discover they were laughing at him.

Suddenly at the moment when the speaker, lifting his voice, was about to introduce a touch of pathos, he was interrupted by a dry and somewhat insolent comment. The loudspeakers said:

"Enough! Monsieur Reynier-Vitral, shut up! You have said enough stupid things to last a year."

Immediately there was a reply. M. Reynier-Vitral had evidently heard the remark, for he said:

"Oh, come, that's not decent. Are you drunk, my friend?"

The lecturer must have thought that the voice came from the announcer just behind him.

But, a cutting voice replied:

"Monsieur Reynier-Vitral, don't insist! Your lecture is over. Nothing that you say will be heard. I am the only one who will be able to hear what you say. What? You say you will complain to the authorities? Complain ahead, I wish you luck."

The public was amused, thinking it was something arranged in advance, like one of those scenes in the theatre in which confederates in the audience answer the actors on the stage. That a person of the eminent respectability of M. Reynier-Vitral should take such a part was a bit odd, but Paris contented itself with thinking that he must have been paid extremely well to take so ridiculous a part, a part which made all the other scientists of the world ridiculous at the same time.

● A farce improvised by means of the radio, that was something really new! Without counting that it was doubtless the first announcement of a great new discovery for since Reynier-Vitral had heard the other speaker, it was evident that it had become possible in some way for the hearers of a program to make the speaker hear them. What a vista! To be able to make the artist hear one's applause, hisses, or caustic comments, while one remained comfortably seated in one's armchair before the fire.

Or was it a joke on Reynier-Vitral? He would be the object of all the jesters of Paris the next day, and would probably sue the radio company for having asked him to lecture, and that would be the funniest of all.

Suddenly, amid the universal gaiety, the familiar voice fell like a douche of cold water.

"Listen! It was I who threatened you all the 18th of last October. You have already forgotten; you did not wish to understand. Remember the sudden dark, the terrible cold that you passed through. I wished to destroy the world, and you thought I was crazy, did you? Because I didn't complete the experiment, you said 'It is impossible'."

In the different parts of Paris where loudspeakers were installed in public squares the crowd listened, curious but not scared. The unknown no longer frightened them; his bluff would end in a check, as before.

The voice went on: "Haven't I given you sufficient proofs of my power?"

In the Place de l'Opera a single voice rose:

"Razzberry!"

At the same moment, near the Etoile, another voice cried out:

"You'd think he was claiming he didn't do it."

The voice replied, with an indefinable accent of disdain:

"I didn't do it? You poor idiots; do you think I'm excusing myself, like a practical joker whose joke didn't come off? Listen! I am going to tell you my conditions; the conditions, Parisians, on which I will permit you to continue living."

The voice was silent for a moment, then went on with increasing violence: "Listen! Listen! If you don't all want to be killed at the moment I have chosen, you must give up three victims to me. Two men and a woman. I wish the two men to perish like two animals, surrounded by the execration of their kind. Whoever tries to help them will perish with them."

The actions of the crowd on hearing this singular explosion of anger resembled defiance more than fear. Nevertheless, there were no voices raised in protest. The unknown, who struck from a distance, as though he were endowed with the gift of hearing and seeing

everything on the spot, paralyzed the indignation of those who heard him because he remained hidden. Where could one find him, how could he be struck at?

A sort of savage laugh vibrated from the loudspeakers. Then the voice went on. "I will give eight days to those I have mentioned to put an end to their existence. Let them be grateful to me for permitting them to choose their own forms of death, to commit suicide easily. If they have not died within the eight days there will not remain a single living being in the whole of Paris! All you who hear me now will die in the midst of the most frightful sufferings. But not all at the same time; for I have thought the matter over. Instead of killing humanity off at a single blow, I will slaughter it in detail."

And the voice added, with another of its abominable laughs:

"It will be much more amusing that way. Now listen; this is my last public communication. I will not again warn you of my intentions. But you can expect some unpleasant surprises. Since last October I have perfected my apparatus. This time, nothing can halt me."

And suddenly, the voice became louder, more sonorous, to pronounce these terrible words: "Have no pity on the men whose death I demand. They are nothing but highway robbers, assassins. I am going to give you their names, for they are cowards, they hide so that the people of Paris cannot find them to tear them in pieces. They are named—"

The two names which should have been uttered were never pronounced! The loudspeakers carried to the crowd the noise of a brief clatter which was succeeded by silence, all the ordinary radio programs were off the air. Was it some new mystery? Then the voice came back, reinforced with new fury.

"Those who are trying to interrupt me would do better to be demanding my mercy. No one can leave Paris without my permission. I have today given you all proof of that. What more do you need? Victims? You will not have long to wait. Beginning tomorrow I shall punish all those who are in my way. Listen! Listen! I am going to give you the names of the two men who shall die. They are—"

As on the first occasion, there was nothing but a confusion of burbling sounds. And then laughter—the laughter of the listeners—was clearly audible. But the strange communication to the public was not ended.

● "Listen, you who are laughing! You won't find it so funny tomorrow. For I now revoke the delay of eight days which you do not deserve. Tomorrow morning the first victims shall fall. I shall not stay my hand until you deliver the woman I hate over to me. The day after tomorrow she will be alone, in the middle of the Place de la Concorde. I shall go, I alone, to take her away from there, before all of you, who care to watch. For I do not fear you. You will see me tomorrow; I who challenge all of you will be there. And beware of trying to interrupt me; the man who attempts it will be struck by lightning. Do not try to deceive me; you will not succeed. The woman I demand, who is to be my slave is named—"

An agonizing silence. Then a voice, breaking on a note of rage and powerlessness:

"She is named—"

Another silence. A power as strong as that of the unknown was opposed to the appeal he was making to the fear and the egoism of the multitude. And rightly; if the three names were pronounced how many cowards in the crowds that heard the voice might not have hurried to carry out its bidding in the hope of saving their own lives?

But the names were never pronounced. The vast majority of those who heard were convinced they were listening to a supreme and unique exhibition of bluff. If the names were not given, it was because the man of hate at the other end of the broadcasting line had decided, at the last moment, not to give them.

People thought so. But the general curiosity was held at fever heat by the number of curious communications that come in during the night. At London, a voice, speaking the most perfect English, had declared through the loudspeakers there:

"From this time on, no French vessel will be able to reach any port in the British Isles. No airplane coming from France will be able to land on British soil?"

The London public is less easy to stir than that of Paris. But the communication caused a lively emotion of surprise, for it was thought to be an official announcement. What did it mean? Was war against France to be declared?

A denial from the First Lord of the Admiralty and from the authorities in charge of aeronautics came a few minutes later to calm the aroused public. The denial was followed by the statement that the author of the false information was being searched for and would be punished.

But, on the following morning the news came in that the same announcement had been made over the radios of Brussels, Rome, Berlin, Moscow, Madrid, Lisbon, Athens and New York. When the differences in latitude and longitude were calculated it was discovered that all these broadcasts had followed each other within fifteen minutes.

Eight more official denials followed each other in rapid succession.

What was it—a joker's syndicate abroad on the air? The same person, even granting the utmost speed of transmission, could certainly not have made himself heard in so many places at the same time. Evidently, the chief of this mysterious band must have assistants in all these cities.

But the international astonishment grew still greater when it was discovered that the different countries forbidden to French ships and planes, by the voice on the radio, received no more visitors from France. Some magical influence immobilized the great liners at a distance from the coasts. The airplanes were forced down before they had crossed the frontiers of France. And what was worse, it soon became evident that the international trains that left Paris were not arriving either. It touched various interests in their most sensitive spot; it upset the European equilibrium like a war. The situation was impossible.

But it had to be made possible all the same. Shipping companies, airplane companies, railroad companies, took the necessary steps to limit the disaster as much as possible. The halting of the international trains had brought with it the stoppage of the trains within the borders; long lines of immobilized railroad cars crowded the tracks. The ports along the Mediterranean and the

Atlantic were less overcrowded, but they were rapidly becoming encumbered as the captains of ships hesitated to put to sea. At the airdromes, all was silence and stagnation.

A final surprise was yet to come for France; for all Europe. An attempt to organize traffic in trucks was begun; and every truck halted, out of order at the edge of the country.

This time doubt was no longer possible. The mysterious voices which had made their announcements in the cities of the world were not those of jokers. But they remained mysterious. And the opinion of Europe turned back to the threats made in the previous October and the phenomena that had followed them. What object had the man who was thus girdling France into immobility? And if he was, indeed, serious, who were the victims he had demanded?

It was noticed that the states of Central Europe had not received the mysterious communications, nor had any country outside Europe with the sole exception of America. All the scientists of the world turned their resources on the problem, to solve the questions it aroused, but above all to put an end to the blockade of France, for her isolation menaced all with some unknown disaster. And the scientists of the world remained in complete darkness.

But how had the communications been made? For it had to be admitted that France and all the other countries that had received the messages were covered with an enormous network of radiation.

CHAPTER XIV

The First Victim

● At the National Office of Scientific Research there was feverish activity under Mazelier's direction. The Minister of Science had never hidden his view that this office should be a sort of discovery-factory. Consequently, it was Mazelier's duty to make discoveries.

Mazelier had smiled when this viewpoint was presented to him, and then said:

"Your Excellency may count upon me."

The "Excellency" discovered in this statement a sort of promise to get immediate results, and communicated the good news to the cabinet.

"You see! I called in Mazelier. I admit that I don't think a great deal of him. He is a little too sharp with that tongue of his. But I know men, and I touched this one on his weak point. I said to him, 'Mazelier, you must discover the means of restoring peace and security to the world.' And he answered, 'Excellency, I will do it at once.' Isn't that a bit of all right?"

Mazelier was even more on the right trail than the minister imagined. In the laboratory, for the tenth time, he was discussing a matter of tactics with Gribal.

"But I don't understand," said Gribal. "You only have to make a single motion to return things to normal. Why don't you do it?"

"Can't you imagine, my friend?"

"No. Time is passing. The delay which the marquis has been so gracious as to grant us, for our double suicide, is already half over."

"Are you afraid, Gribal?"

"You know very well I'm not, chief. Just the same, I admit that I would like to know how we're going to get out of this. The scoundrel has got himself a whole new set of teeth and claws."

"Let's look things over, Gribal. The marquis wishes to get rid of us. Has he succeeded? He tried a vague allusion to us when he spoke of highway robbers. But he couldn't do more without revealing his own name. Before leaving for Biarritz, he tried to turn the minister against me, but he didn't push the point hard enough and the poor minister didn't understand. Finally, he wanted to give our names to the crowd, and I cut him off after having let him make his little speech. And since then, what has he done? He has made use of the same forms of radiation we used on him on the Estampes road. I admit that he has made progress. But he must be allowed to believe that we are still behind him. That illusion will help us a lot."

"And the woman he threatened at the same time as us?"

"Wait and see who she is, Gribal. As to seeing her alone in the Place de la Concorde, I would like it very much. Things wouldn't turn out the way the marquis expects."

"But he will make victims."

"He says so. We shall see tomorrow. He can't do as much as he thinks."

"If we only knew where he is!"

"I would like to know that myself."

"Haven't you calculated?"

"Result, nothing. The only thing I can be sure of is that he has left Biarritz for Paris to try to stir up a mob against us. Since then I have lost track of him. And I admit that I cannot make out how he was able to speak in eight or nine places at once in so short a space of time. It's really quite wonderful."

"What he's doing now doesn't help you in locating him?"

"No. Perhaps he has an automatic apparatus. But anyway, there is no hurry, Gribal."

"What, no hurry? But we'll really have a catastrophe on our hands if this keeps up."

"Yes, but it won't keep up. We can end it whenever we wish. Only, the lesson must be rubbed in on the public. Do you remember the day after the catastrophe of last October? Nobody took the destroyer of the world seriously. Now he is stalling our economic life, and there is unanimous indignation. If I had intervened too soon, what would have happened? Do you see? Well, I will tell you if you don't—You and I, Gribal, would be finished. For nobody would have believed us when we came to reveal what we know."

"And now?"

"Ah, now it's a little different. Fear is decidedly the mother of wisdom. The minister sent for me a few minutes ago."

"And what did you say to him?"

"Naturally, that I was still in the dark."

"But . . ."

"But, Gribal, you forget that the Marquis de Saint-Imier is a personal friend of the minister."

"Ah," cried the engineer, "really, you have a good deal of courage to continue the combat under such conditions."

"True," said Mazelier placidly, "the conditions are not too good. But I have a date tonight; in fact, I'm going there right away. Will you go with me?"

"Where is it?"

"To the Élysée."

"To the President of the Republic?"

"The same. It will not be the first time that the President has shared a state secret. Come along, Gribal, this time, they will believe us; there is a national danger."

● The two men rose.

"The devil!" said Gribal, "we're stepping out. To the Élysée Palace! But it's a little embarrassing; I am not used to places like that and I warn you that if it's going to be necessary to go through my paces before him, it might not turn out right. I think it would be a good job if I stayed here instead of going along to try out life among the flunkies."

Mazelier was ordinarily grave, silent and even a little reserved. But Gribal's fears sent him off in a burst of laughter.

"What an idea of etiquette in a republic you have! Haven't you had enough practice in the art of bowing? *Mon Dieu*, what will happen to us? I don't know any more about it than you do—they'll probably have us guillotined for kissing the floor at the wrong moment."

And the scientist added, with genuine sincerity:

"As a matter of fact, I probably know less about etiquette than you do."

And then, went on, with another laugh.

"We can practice a little before we start, if you like."

It was Gribal's turn to laugh.

"Bah," he said, "they will excuse us in view of what we have to say."

"Ah, this time you have touched the mark. And now, Gribal, listen—I have never met the President, but they tell me he's a good sort; just the kind of man we need, in fact. I don't think the etiquette question will worry him much."

Calmed by this soothing thought, Gribal started toward the door of the laboratory. He was about to open it when Mazelier cried:

"Stop! Don't open."

In the scientist's pocket his radiation-indicator was giving forth its characteristic buzz.

"You see, Gribal! The marquis is not going to wait for the expiration of the twenty-four hours he gave us before we popped ourselves off. He's taking matters into his own hands. The good fellow actually thinks he can get us before we get to him."

"I ought to have thought of that," said the engineer. "Would you believe it?—I actually thought the marquis would keep his word, and that we still had some time before us."

"Do you know what this rushing the program proves, though? That things are not going quite as well as our gentleman would wish. If he anticipates himself, it's because he's afraid of something. And that's queer, too, because except for shutting him up when he was about to give names, I have let him go ahead as he liked."

The revelator continued its buzzing.

"Hunt, go ahead and hunt for us," said Mazelier. "We're safe here, old scout. My turn will come, too."

But Gribal could not repress a little shiver at the thought that a tiger's cage would have been a slightly safer place than the outer laboratory beyond the protection that Mazelier had thrown around their inner walls.

The indicator continued its annoying and hateful buzz.

"Decidedly, he must have determined to make an end of us today," remarked the engineer.

"Yes, but I have taken the necessary precautions."

And Mazelier continued with a statement that surprised his companion:

"If he can see and hear at a distance, he at least can't see and hear into this room."

To see and hear at a distance? Had the marquis solved this problem also? And was Mazelier still undisturbed?

These questions hurried through Gribal's mind and he was the victim of a sort of discouragement. It was impossible to blink at the facts; Mazelier and he, had before them an adversary as strong as themselves, provided with fully as much inventive genius and having the advantage of a lack of scruples that permitted him to do things they would not do.

Mazelier had understood from the start that they would have to use the same weapons as their antagonist. But that might injure innocent people at a distance—and all at once the engineer was terrified by the thought that the marquis might be pursuing a parallel line of research. The man who had made his voice heard in all the great cities of Europe and America would certainly be able to distribute his malignant radiations abroad in several different places at the same time. And if one of these projections touched Gribal's house? He himself was safe—but his wife? and the children?

He could not remain still.

"Chief! I must try to get out!"

"You're crazy. Why?"

"Who knows what's happening at my home?"

Mazelier replied in a tone of authority:

"Nothing is happening there. Be calm. While he's busy here, he can't be thinking of other attacks."

"Are you certain?"

"Absolutely."

But Gribal's disturbance gave rise to several useful ideas for Mazelier. As a matter of fact the marquis might very well be looking elsewhere, than at the office, for his enemies. Already, he had attacked the engineer at home, and had struck the exact spot. As a consequence, Gribal must not go home at all. And as a second consequence, his family must leave the Rue Boissy d'Anglas as soon as possible.

"You must move, my friend, to some distance from Paris, and without saying a word to anyone. Mme. Gribal had better pack a few indispensables in a valise and clear out at once—but listen, tell her not to pack any trunks or make any ostensible preparations. Send all of them away this very evening."

"And how are we going to let them know? We are imprisoned here."

The rattle of the revelator continued.

"True," admitted Mazelier. "He's keeping us in here. I could get us out, but to do so would be to reveal to him that I know the forms of radiation that he is using, and that I have an answer to them, and he must ge kept in ignorance of this. Patience, Gribal! He'll get tired of the game before we do, I repeat it."

Suddenly, the ringing of the revelator came to a stop.

"Quick! Let's go," cried Gribal.

"Wait a minute. No hurry."

Mazelier waited silently, his head on one side.

"Listen, Gribal. What did I tell you? It's starting again."

The buzzing started again; then halted, and went on in a series of fits and starts at irregular intervals.

"Good thing I'm on the job," said the scientist. "But something isn't going right with the marquis."

There was a sort of pulsating of the buzzer and then as though the emission apparatus had reached the limit of its power, there was complete silence.

"This time I think we can risk it," said Mazelier. "Now, let's move fast when we do move."

Gribal, mad with impatience, threw open the door, and dashed down the corridor, followed by his chief. The two men arrived at the vestibule of the office. A tenth of a second and they were in the street; a half a minute and they were in the avenue. All at once, Gribal sank like an inert sack of corn to the pavement, and at the same moment the revelator vibrated for a second and then became mute once more. But Mazelier had the time to hear a sarcastic voice, which seemed to come from someone standing directly at his side, murmur:

"Got one!"

He looked around; he was altogether alone, with the inanimate Gribal at his feet.

Not altogether alone; for Roland Duplay was hurrying to help him.

(To be continued)

What Is Your Science Knowledge?

Test Yourself With This Questionnaire

1. What is one theory regarding the ability of birds to find their path of migration? (Page 137)
2. What is the internal construction of the atom? (Page 138)
3. What is a theory regarding the origin of the asteroid belt? (Page 149)
4. What is globigerina ooze? (Page 110)
5. What would be the water pressure at a depth of 32,000 feet? (Page 113)
6. What is "ball lighting"? (Page 121)
7. What is the action of hydrofluoric acid? (Page 127)
8. When did Halley's Comet last come? (Page 163)
9. How is it proposed to feed people without food? (Page 178)

Can We Make Lightning with Rockets?

• THE possibilities of making artificial lightning have been investigated with many high-voltage experiments; but an investigator who has for years been trying to photograph lightning suggests to rocket experiments the idea of bombarding the clouds, when the conditions of a thunderstorm have been reached, in order to break down the dielectric and cause the discharge at a selected point. For this purpose, he suggests the use of the step-rocket, whose theory is well-known to readers of interplanetary fiction. Other interesting ideas, such as the approaching development of tide-power, new ideas in aviation, the utilization of ultra-violet rays, etc., are discussed at length also in the July number of

EVERYDAY SCIENCE AND MECHANICS

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The Elixir

(Continued from page 159)

The next week he spent receiving instruction in the simple forms and orders of thought and was admitted once again to the Temple and again came out more certain than ever that the vague and nameless thoughts which coursed through his brain needed only another period of contemplation. And again, after a few hours of walking he returned to the Temple for new inspiration.

Some weeks later he went to speak to Condonal.

"When primitive one-celled animals began to first cooperate," he said to the Master, "they did not at once form a Man."

"True."

"They formed first some low form of water animal which was not able to reason. Reason did not come for millions of years—not until the form and arrangement of the cells had been changed and again changed countless times."

"You have gone far in a short time, Winters."

"Should there not be other temples set up—many of them—each working with a different ritual? Might there thus be more chance of our hitting upon the proper form of cooperative thinking which should produce our Being of super-thought?"

"We are testing our ritual constantly. Already the instruments set in and about the temple have recorded interesting phenomena: unusual changes in electric potential; a tendency to ionization of air; a shift of the spectrum toward the blue. What these phenomena mean we do not yet know."

"How many are needed to start a temple?"

"The more, the better it seems. But a few hundred should produce results."

"If a group gathered a few hundred miles away would it affect your experiments here?"

"If it did, that in itself would be remarkable and worth trying."

"And another thing, sir. The word of what we do here should be sent broadcast through the Universe. By chance I found you—millions would like to. Can messengers not be sent out?"

Condonal nodded thoughtfully. Within a week the word began spreading through the star-systems and within a year a dozen temples were building on the planet of eternal dawn.

Within a century the Temples of Thought were numberless throughout the Universe and its cult absorbed the attentions of half the human race. Winters took his part in the ritual of a temple built on a mountain-top not far from Condonal. And now day after day, century after century, millennium after millennium he spends his time and energy upon the problem. Always the green sun sends its pearly radiance over the land and when he walks thoughtfully to the night side of the mountain he gazes upon an empty sky, black with sheer nothingness—for here the universe ends and beyond lies nothing.

With a telescope more stars can be seen—far distant universes unbelievably remote. Traversing this space are space ships—ever questing—on voyages that last hundreds of thousands of years. On through space spreads the cult of the Thought-Temple. New forms and rituals are tried and improved upon constantly. New and unreadable phenomena are recorded on the instrument panels.

And ever and again Winters comes out from the Temple full to the soul with thoughts and feelings ever fresh and new and gazes wonderingly upon creation with eyes that are almost, but not quite, opened to its inner meaning.

Here we must leave him. Immortality is not yet ours, nor can our minds anticipate what lies beyond reason. Yet we can imagine the tools with which the last secret might be wrung from a jealous Nature. And as Winters pointed out to Condonal in one of their frequent discussions: "If this means fail to solve the problem, yet the idea does not necessarily fail with it. For if Reason be life in the second degree, and the super-thought we seek be life in the third degree, then nothing prevents an evolution of third degree Beings and their cooperation in the creation of a fourth-degree Creature."

"He may be pure Energy," suggested Condonal.

"Or the essence of Life itself," replied Winters, his pale face gleaming as though lighted from within by some hidden dream. He was thinking of the countless billions of human beings who had lived and died on a distant planet. He was wishing that some means might exist of telling those tragic figures of these new hopes and joys. Would it still that despairing cry of "Why? Why?" that rose from a million rattling throats on the fields of Flanders? Would it heal the broken heart of the man he had known in his youth at New York who after forty years of drudgery in an office realized one day that he had grown old before he had found time to do anything with his life and had, after a week's dark brooding, committed suicide? His thought cast back over the millennia—as readily and surely as it could wing its way through into the future. For what wall can bar thought?

How it reached me, I do not know. That it has reached me this story proves. Not, perhaps, in unadulterated form—for my own prejudices and rationalizings have stamped it into a form and meaning comprehensible to my twentieth century brain. I cannot even be certain that it is true in its entirety—but parts of it, I promise you, will one day come to pass. And in the mean time, let us, with the immortal Voltaire, "cultivate our garden."

THE END

Don't Forget the Next Issue of
Wonder Stories Will Appear Aug. 1st

Castaways on Deimos

(Continued from page 135)

When Paul returned to consciousness he was in the lifeboat, with Melda sitting at his side, her cool hands on his forehead. For a long while he lay thus, as if in a dream. Then he opened his eyes. Across the lifeboat lay two bound figures, Snazin and Dodson. Paul's incredulous eyes stared upward.

"Melda!" he exclaimed. "You!" He sat up. At first he was weak and giddy. Gradually his weakness wore off. His incredulity did not. Melda was smoking a cigarette. Her features were composed. Paul looked again and again at the two bound figures, then back at her.

Melda smiled encouragingly.

"Oh, can't you get over your incredulity!" she exclaimed. "You're not in an era where woman was the weakling she used to be. You know I was tennis champion and on the rowing team in college. A child could have handled them. I crept on Snazin, like a coward, from behind and tapped him with the control lever. As for Dodson, while he waited in the airlock for the air to be drawn out I got ready for him. He was not expecting the lever for a visitor either. Really, it was simple."

Paul was incredulous. Melda, of course, was no weakling. She had captured and bound Snazin and Dodson single-handed. She had at once donned Dodson's space suit and had come to his rescue. That meant —that meant—she must care for him. Paul suddenly felt that he, as a man, had played a very unimportant role.

"I had a time getting back in," went on Melda calmly. "What air there was, in the lock of the poisonous atmosphere outside, I had to let come back in with me. However, other than making me dizzy, there were no ill effects."

Somehow, Melda had put the children to sleep. Paul edged softly over to her side. He hardly dared touch her.

"Melda," he said softly, "I wouldn't dare say anything if I thought we weren't going back to civilization some day. Some other time, perhaps, I wouldn't dare say it. In fact—Melda—"

"What do you want to say?" queried Melda, looking ingenuously upward.

"Oh, Gosh—well—" Paul suddenly lost his courage and said something entirely different from what he had intended saying. "It's curious, Melda, but that fall I had really saved us. Dodson flung me down there. That debris—Melda—you know what it was? *Venusite*—the propelling ore. We can go down there again. I can go down the rope and get it. Then our lifeboat will rise from this damnable satellite. *Venusite*—down there, Melda, *Venusite!*"

Melda cooly extinguished the cigarette. "I knew it," she said calmly. "I saw it on the scar made by the crumbling precipice. We won't have to go down upon the ledge."

Paul stared. He felt crestfallen. He must have been blind, not having noticed the *venusite* on the scar at the precipice brink. He was about to leave, when suddenly, the girl who had shown such resourcefulness, displayed another side to her character which completely surprised Paul. She fell upon his shoulder and sobbed. To Paul it was a revelation. It seemed suddenly that he had known this girl for aeons, that a world of understanding lay between them. He knew then that she loved him, he knew why she had risked her life out on the planetoid to save him, why she had been given courage to tackle a job before which a grown man might have quailed.

He drew her face upward and bent toward the submissive lips. He started to kiss her and then—didn't.

They were alone upon a desert satellite. Suddenly, all his natural inhibitions returned with full force. He gently disengaged his arms.

"A few days and we'll be back on earth," he promised. "Then—"

She smiled understandingly. One of the children wailed in its sleep. She hurried to its side.

THE END

NOTICE

WE have discovered, from the results of four years of the publication of WONDER STORIES, that our readers tend to spend the summer months out-of-doors and hence do much less reading than during other seasons. After careful consideration of this experience, and desirous of adjusting the magazine as closely as possible to actual sales conditions, to give our readers the benefit of the best possible stories during the other months, we have decided to combine the July and August issues in this number.

The next issue of WONDER STORIES therefore will come out August 1st.

THE PUBLISHERS

The Cosmic Horror

(Continued from page 127)

I heard the trickle of running water.

Down. Down..... Walters came to an abrupt stop.

"Elton," he protested in a guarded whisper, "I think it's foolish to go any deeper into this shaft. It'll be dark outside before we know it; the thing will start on its regular nightly hunt, and we'll be trapped. I didn't think three of us could find it—these caves are too big."

Elton did not answer. From far in the distance ahead there came a faint rustling sound, as of some leathery substance brushing or dragging against the rocky surface. We listened intently. The noise stopped. Then:

"No Walters. I'm still playing my hunch. I'm going straight ahead. We'll turn back in time to get out before dark if we don't find it, but I think we're on the right track."

The sheriff grumbled to himself and we started again. The tunnel broadened out presently and, so far as I could judge, proceeded on a nearly horizontal plane. The ceiling rose, the walls fell away from the flashlight's radius, and the unseen dimensions of the place impressed me as huge.

Then, through the damp air with its taint of mold and corruption, floated that repellent, magnetic current which we had come to associate with the close presence of the Horror. Elton made a satisfied sound and we pressed forward cautiously along the lane of light from his lamp.

Again our ears caught that faint rustling sound, still ahead but much nearer. Elton stopped and snapped off the flashlight Darkness wrapped us like a tangible thing The silence was absolute. Here, then, in the very bowels of the earth, far below the clean air and sunshine of the world of men, the foul enormity must lie hidden, waiting for nightfall before coming forth on another raid to satisfy its ravenous appetite.

As my eyes grew accustomed to the stygian blackness, I discerned ahead and to our right, a ghostly glimmer, more like a dim phosphorescent glow than a light. With infinite care we picked our way soundlessly through the dank gloom, the magnetic current growing ever stronger. We rounded a bend in the cavern's wall and stopped before the source of the light; the mouth of a roomy, rock-bound alcove opening off the main artery.

Within lay a sight of soul-freezing horror, as alien to our earth as though we stood in the depths of some strange planet. The floor shelved downward from the opening, and along one side ran the blind brook we had heard from afar. The details of the place are vague in my mind for my gaze was instantly held by the source of the faint glow which permeated the place.

It was a great flat shape, porous and leathery, lying on the rocky floor on the far side of the chamber, and pulsating slowly and evenly. Even as we watched, it stirred slightly and the dry rustle sounded, startlingly loud in this place of silence. It was the Horror at rest! Around it clustered a group of similar flat shapes, but only a fraction of its size. All palpitated slowly, rhythmically; all emitted the same dim radiance. Dried excreta, very like the droppings of birds, littered the floor, and a nameless odor joined the overpowering magnetic emanation.

"Good God!" breathed Elton from beside me. "The thing has propagated! A devil's spawn from hell, waiting to get loose on the world!" His whispered words held uncontrollable loathing.

I made no reply—I was too shaken by that abominable sight. Then Walters stirred, cautiously, restlessly. A pebble, dislodged by his groping foot, came loose and rattled down into the alcove. Instantly the flat leathery growths began to fill out, began to glow more and more brilliantly; a weird effulgence filled the chamber and eery shadows quivered on the walls. My heart pumped furiously and my muscles tensed, as the parent creature, wide awake and ready for action, swelled into the glittering globular shape we had come to know so well and floated lightly into the air.

Elton drew the trinitrotoluene pistol from his pocket and pressed the small lever which actuated the heating element.

"You first, Walters," he grated between clenched teeth. "Aim at that knob of rock above it; then run like hell!"

The Horror began to sway. It was as though a great molten ball were suspended by a chain and swinging slowly in short arcs. The preliminary to its flashing attack! Its offspring clustered beneath it on the floor, blasphemous little spheres of potential destruction. The time was ripe.

I stood back out of the way. Walters hurled the wax jug of hydrofluoric acid straight at a projecting point of rock above the creature. The flask shattered to bits and the Horror beneath was sprayed with the deadly stuff. For once man's quickness had outmatched its own. As I watched, flames burst from it—the clean flames of real combustion. Then came a hissing of air beside me as Elton fired the pistol.

I had a glimpse of the chamber, a flame filled inferno —then the terrific rending power of the T. N. T. had brought down the roof. It collapsed with a series of hollow booming roars, and the visitor from space, with its foul progeny, was buried under tons of shattered rock.

We had leaped back into the main tunnel to crouch behind a jagged outcropping of the cavern's floor. Flying fragments filled the air and the force of the concussions shook the cave and flattened us behind our rampart. A stench unbearable issued from the direction of the monster's lair.

When the dust and smoke and fumes had cleared away, we saw that the mouth of the chamber was sealed to its roof by a great pile of crushed and broken stone which flowed far out into the main cavern.

We turned away. In our hearts welled relief and thankfulness too great for words as, shaken, bruised and blackened, we began the long walk back through the darkness to the world of light and men; the world we had perhaps saved from ultimate destruction by a constantly multiplying band of nightmare Horrors.

THE END

Science Questions and Answers

This department is conducted for the benefit of readers who have pertinent queries on modern scientific facts. As space is limited we cannot undertake to answer more than three questions for each letter. The flood of correspondence received makes it impractical also, to print answers as soon as we receive questions. However, questions of general interest will receive careful attention.

A Mystery of Gravitation

Editor Science Questions and Answers:

According to science, two bodies will fall with equal velocity in a vacuum, irrespective of their masses. This fact does not seem quite correct to my poor mind. What is the catch?

Harvey Griswold,
Rye, N.Y.

(Although the statement above is one of the most accepted in science today, there is a catch. Ever since Galileo made his famous experiments the scientific world has accepted as invariable truth the law of falling bodies in a vacuum, and it would appear that it is an iron law. Yet, as a matter of fact, it is only an approximation, even though it is a very close one.

Since we know that two bodies attract each other according to the product of their masses, the gravitational force between the earth and a falling body naturally becomes larger as the mass of the falling body is larger. Why then, one might ask, should not a heavy body fall to the earth faster than a smaller one?

The acceleration of a body toward the earth is given by the formula

$a = Gm/r^2$ where G is a constant
m is the mass of the earth
r is the distance between the centers of the two bodies.

The acceleration of the *earth toward the body* in question is

GM/r^2 where M is the mass of the falling body.

Evidently the total acceleration is

$G\ (M+m)/r^2$

Now the mass of the falling body might be ten pounds, one ton, or even a hundred [illegible] The mass of the earth, however, is

13,000,000,000,000,000,000,000 pounds.

It is evident, therefore, that the acceleration, or the rate of fall of two bodies, toward the earth is the same irrespective of their mass, unless one is so large that its weight approaches that of the earth.

Naturally the moon would fall toward the earth faster than a ten pound body because the mass of the moon is somewhere in the same order of that of the earth. But a ten pound body would fall no slower than a ton-ton body. *Editor)*

The Great Ice Age

Editor Science Questions and Answers:

Will you please publish in your columns a brief description of the Great Ice Age of which we have heard so much spoken?

William F. Collins,
Minneapolis, Minn.

(Some 250,000 years ago northern Europe and the North American continent as far south as northern United States were buried under a blanket of ice 4,000 to 5,000 feet thick. In Europe, said Sir Archibald Geikie, one of the students of the ice age, "the southern edge of the ice sheet must have lain south of Ireland, whence it passed along the line of the Bristol channel and thence across the south of England, keeping to the north of the valley of the Thames. The whole of the North Sea was filled with ice down to a line which ran somewhere between the coast of Essex and the present mouth of the Rhine. Eventually, and no doubt very gradually after episodes of increase and diminution, the ice finally retired to the north and with it went the Arctic flora and fauna that had peopled the plains of Europe, Canada and New England. The existing snow fields and glaciers of the Pyrenees, the Alps, Norway in Europe, and of the Rocky Mountains in North America, are remnants of the great ice sheets of the Glacial Period, while the Arctic plants of the mountains, which survive also in scattered colonies in the lower grounds, are relics of the northern vegetation that once covered Europe from Norway to Spain." The ice age still holds sway today in Greenland.

The first man to work out clearly the theory of the ice age was Louis Agassiz who speculated upon the presence of boulders high up in Alpine mountains, and composed of materials only found in valleys many miles away. He concluded that the only possible explanation of the presence of these boulders was that a great sheet of ice had swept over northern Europe and carried the boulders from the valleys to the mountain tops. One explanation of the presence of the ice age is that some 200,000 years ago the wobbling of the earth's axis gave parts of the northern hemisphere an Arctic climate for a considerable period.—*Editor.)*

The Density of the Planets

Editor Science Questions and Answers:

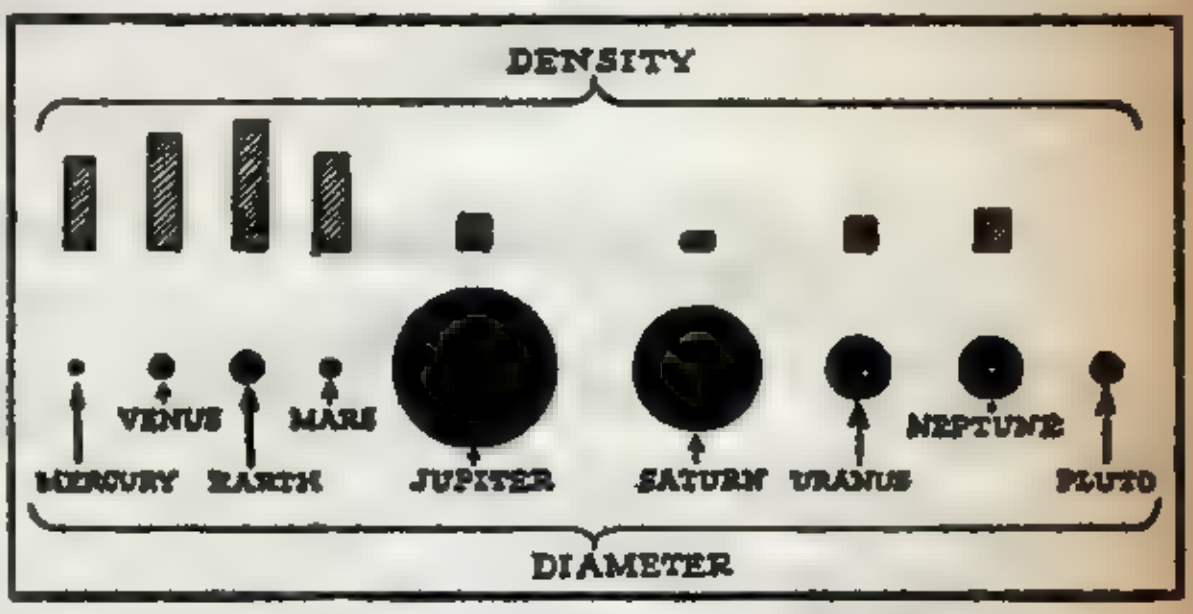
Would you print something about the size and mass of the solar planets? Which is the most, and which the least dense?

Algernon Berk,
Portland, Me.

(The table below indicates the diameter, mass, volume and density of the solar planets. It will be noted with interest that the earth is the most dense, by at least 12% over that of Venus, the next dense. It is nearly eight times as dense as Saturn and four times as dense as massive Jupiter. Whether the great density of the earth has any connection with its place as an abode of life, we do not know. Yet it has possibilities as an interesting theory. By its extreme tenuity Saturn must be composed of a gas or very light solid. Even Mercury, which is a dried out crust has a density one-third less than that of the earth. We can feel a sort of local pride in the earth as the "densest planet in the solar system." It is possible that some of the planetary moons might be more dense. But we do not know.

Body	Diam. Miles	Volume Earth=1	Mass Earth=1	Density Earth=1
Sun	864,392	1,300,000.	331,950.	0.26
Mercury	3,008	.055	.04	.70
Venus	7,676	.920	.81	.88
Earth	7,918	1.000	1.00	1.00
Moon	2,160	.020	.012	.60
Mars	4,216	.150	.108	.72
Jupiter	86,652	1,312.	316.94	.24
Saturn	72,332	734.	94.9	.13
Uranus	30,878	64.	14.56	.23
Neptune	32,938	60.	17.14	.29
Pluto	5,000(est.)	1.000	?	?

The drawing herewith shows the diameter of the planets graphically and also the relative densities.—*Editor.)*



This diagram above shows the relative sizes of the solar planets. Of course the earth and other minor planets are a trifle large in this diagram. But the general relation at the sizes is evident. The length of each line shows the density of the planet relative to that of the earth.

READERS

If you like "Science Questions and Answers" in this magazine, you will find in our sister magazine, EVERYDAY SCIENCE AND MECHANICS, a similar department, greatly expanded called "The Oracle." Look for it, you science fans!

Gases, Liquids and Solids

Editor Science Questions and Answers:

Will you please publish the list of chemical elements and tell whether each is a gas, a liquid or a solid?

Meyer Christie,
Brooklyn, N.Y.

(The following is the list of chemical elements and their normal state. We say normal, because almost any element can have its state changed by a change of temperature, pressure or both. So, although hydrogen is normally a gas at normal temperatures, it can be liquefied, possibly even solidified. On some of the far-flung planets, such as Saturn and Uranus, hydrogen might occur normally as a liquid or a solid. So when we speak of whether an element is a solid, liquid or gas, we speak of its state on earth under normal conditions of temperature and pressure. The elements are also listed according to whether they are metallic or not.

Atomic No.	[illegible]	State
1	Hydrogen	Active gas
2	Helium	Inert gas
3	Lithium	Solid metal
4	Beryllium	Solid metal
5	Boron	Solid non-metal
6	Carbon	Solid non-metal
7	Nitrogen	Inert gas
8	Oxygen	Active gas

(Continued on page 191)

IN THIS department we shall publish every month your opinions. After all, this is your magazine and it is edited for you. If we fall down on the choice of our stories, or if the editorial board slips up occasionally, it is up to you to voice your opinion. It makes no difference whether your letter is complimentary, critical, or whether it contains a good old-fashioned brick bat. All are equally welcome. All of your letters, as much as space will allow, will be published here for the benefit of all. Due to the large influx of mail, no communications to this department are answered individually unless 25c in stamps to cover time and postage is remitted.

That Master Maniac

Editor, WONDER STORIES

Shades of "Dr Hackensaw's Secrets," let us in on the secret, won't you? First it's "Why the Heaven's Fell" and then "Brahma Kalpa—or the Expanding Universe," and both by that master maniac, Epaminondas T Snooks, D. T. G. Would you let down a faithful reader who has been buying your old magazine ever since it first appeared on the news stands? Come on, what's this guy's real name?

I've just purchased the May issue of Wonder Stories, and as yet haven't had a chance to read much of it, but I want to tell you right now, before I read anything else that doesn't please me, that Laurence Manning's "The Man Who Awoke" series is a masterpiece of modern fiction writing. I was unfortunate enough to miss the edition which printed his "City of the Living Dead," but I remember the cover vividly—in fact it inspired me so much that I almost wrote a story with the same plot myself.

The rest of the Magazine looks swell, with the exception of "The Visitors From Mlok," which although I don't especially admire the illustration, I'll probably read because Clark Ashton Smith wrote it.

D. H. Green,
Los Angeles, Calif.

(We have sent a long telegram to Dr. Snooks at his mountain retreat, urging him in the name of humanity, peace, plenty, and the security of mind of our readers to permit us to reveal his identity.

Dr. Snooks' reply is as follows:

"Telegram received. Stop. Under ordinary circumstances would permit revelation of identity Stop. Extreme tension existing between governments of Earth, Mars and Jupiter make secrecy imperative at moment Stop. Have word Martians upset over my story When Heavens Fell. Stop. They believe it anticipation of Earth plot to upset gravitational balance of solar system and thus plunge Mars plan for conquest of Jupiter trade markets into chaos. Stop.

"Am at work on program to have Congress pass law to add extra orbital electron to Hydrogen atom and thus restore prosperity. If plan succeeds will press for the changing of the wavelength of red light and thus kill attempts at Bolshevist revolution. After these matters have been settled will reveal identity.

Epaminondas T. Snooks, D. T. G."

Bound as we are to confidence, we can do nothing but wait until Dr. Snooks has succeeded in his labors.—*Editor.)*

More on the Origin of Mars

Editor, WONDER STORIES:

In reply to Mr. Gottfried about the origin of Mars, the Asteroids, and Jupiter's moons, I offer the following argument. First, I should like to ask Mr. Gottfried how he accounts for the fact that the largest of the particles blown away from Jupiter (considering that such an explosion were possible) would go farthest? Second I would like to show the fallacy in reasoning that such an explosion would be possible. It is generally accepted by leading astronomers that Jupiter is in a semi liquid state at its surface while deeper it is probably solid from great pressure. Jupiter is supposedly composed of, topmost, many layers of gaseous clouds under which are gases and metallic vapors while farther down it is semi liquid

This unsolid state is possibly one thousand miles deep. A spectroscope examination of Jupiter shows some unknown constituents that are not found on Mars. Under the above conditions it would be impossible for a body as large as Mars to be blown off Jupiter in one piece. Again I might ask Mr. Gottfried a question. Not considering the above mentioned fact, how much power would be needed to blow a body 4,200 miles in diameter, 341,400,000 miles? Such an explosion would tear the planet Jupiter asunder!

Were this large body to escape the confines of Jupiter's gravitational pull at no matter what angle it left Jupiter the pull of the sun would be too great for it to establish itself in an orbit. Another thing to take into consideration is the density of the two planets. While the density of Mars is 0.73 the density of Jupiter is 0.23! The difference is too big to warrant any such theory as that Mars is the product of Jupiter. Mr. Gottfried said that the explosion happened around the equator of Jupiter. Perhaps he would be interested to know that at the equator of Jupiter objects move at the approximate rate of 28,000 miles per hour (earth hours of course). If an explosion such as the one mentioned would happen the tendency would be to circle Jupiter and finally fall back instead of leaving at an angle of forty-five degrees. Therefore an object leaving Jupiter would have to contend with, not only the gravitational attraction of Jupiter, but the terrific speed at which all objects move at the equator.

If overcoming one of these obstacles is impossibility plus, how would so large a body overcome two such obstacles? No, I think we must revert to the hypothesis of Moulton if we wish to find the origin of Mars. At least it is more plausible than Mr. Gottfried's theory. As to the formation of canals on Mars, I have nothing to say. As far as I know this is possible but I suggest that Mr. Gottfried take another line of approach concerning the origin of Mars.

Mr. Sykora is entirely wrong in my opinion about time traveling. When we get into time traveling we are dealing with a thing that is unnatural. The so called natural laws govern the present and therefore are null and void when it comes to time traveling. Even considering that time traveling could be controlled by a natural law it would not necessarily disprove time traveling.

I shall take the illustration given by Mr. Sykora. At 12.01, January first, 1900 we find our erstwhile time traveler. Mr. Sykora says that if he departed for another time he would take away some of the mass and energy of the existing universe which would be impossible under the law of "Conservation of Energy and Mass." The sum total of mass and energy in the closed system of the universe would still be constant no matter where the time traveler was. The law does *not* state that the sum total of mass and energy in the closed system of the universe is constant at a *certain time* but that it is constant.

As long as mass and energy is not destroyed this could hold true no matter where this mass and energy is (or perhaps I should say when it is)! Time is just like space only in the fact that it has different laws governing it. The mass and energy would still be in the universe and therefore the mass and energy would be constant. What do you think about this, Mr Editor?

What if Einstein and Eddington do believe the law of "Conservation of Mass and Energy"? That in itself proves nothing. What may I ask does Mr. Sykora mean by the "closed system of the Universe"? It seems that he adheres to the policy that space is curved. According to Mr. Sykora's reference, Prof. Albert Einstein, space is not curved and therefore could not be spoken of as closed. Another thing. The law that states that the amount of mass and energy in the universe is constant is merely a supposition and I challenge anyone, particularly Mr. Sykora, to disprove this.

Mr. Sykora stated that paradoxes were suppositions and proved or disproved nothing. I might say also that the natural law which Mr Sykora mention proves nothing being as it is also a supposition. I would not attempt to prove that it was not true because I could not but I challenge anyone to prove that it is.

Just a word about the magazine. I am glad you came back to the original twenty-five cents ($.25) size and the April issue was the best you have had since the magazine was first published. Paul Schuyler Miller was inspired when he wrote "The Forgotten Man." That story was a master piece of science fiction and it should take its place along side of the "Moon Pool," "The Time Machine," etc. At the top in the note you said he wrote the story in S. Fowler Wright style. If so let him continue it to the end of his days and he will be the greatest science fiction writer of all time! ! Had I the authority I would give him the Nobel Prize in the literary field Nothing like his story has ever been published in Wonder Stories. Here's hoping he keeps it up

I think I have said about enough if not too much. I hope you will find space for this mammoth monstrosity!

Day Gee,
East St Louis, Ill.

(Mr. Day Gee brings up good evidence against Mr. Gottfried's theory. Since we have no definite proof of either, the field is open to all comers who have something to contribute to the discussion. Day Gee brings up a forceful argument when he asks, "how much power would be needed to blow a body 4,200 miles in diameter 341,400,000 miles into space?" Of course, although the power might be terrific when mentioned in terms of horsepower, it would seem more reasonable were the explosion to have been the result of an atomic disintegration of matter within the interior of Jupiter.

However, we'll turn the field over to our readers.—*Editor.)*

ON LETTERS

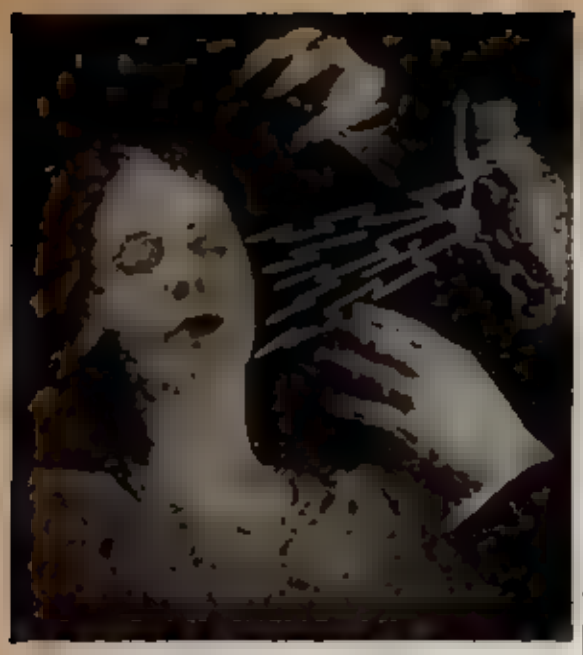
BECAUSE of the large number of letters we receive, we find it physically impossible to print them all in full. May we request our correspondents, therefore, to make their letters as brief and to the point as they can; as this will aid in their selection for publication? Whenever possible, we will print the letter in full; but in some cases, when lack of space prohibits publishing the complete letter, we will give a resume of it in a single paragraph.

The Existence of Intelligent Life

Editor, WONDER STORIES:

Mr Gottfried invites comments on his theory of the canals of Mars. I herewith advance mine. Mr Gottfried's theory is more of an explanation of the existence of the planet than of the canals. That Jupiter is the parent body of the asteroids and of Mars seems highly improbable. But even

(Continued on Page 188)



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THE READER SPEAKS

(Continued from Page 187)

if Mars did come into existence in this manner, the existence of the canals is not explained. Mr. Gottfried encounters the same difficulties that all do who are not willing to grant the existence of a highly intelligent life on Mars.

A cooling planetary mass does shrivel—cracks, etc., appear on the surface (this is seen when one looks at the moon). Yet these cracks are straight and parallel only as often as the laws of chance allow them to be—that is not often. Look at a map of Mars, the laws of chance cannot explain the canals.

Then how do you account for the fact that water on Mars appears to run uphill? By this I mean—as the north or south polar caps of Mars melt the canals become broader and greener. This process begins near the poles and advances as the season advances, toward the equator. Mars being flattened at the poles (according to some observers 20 miles) therefore on Mars we see water running uphill. This cannot be explained by rainfall, as rainclouds are scarce on Mars.

The late Professor Percival Lowell believed that great pumps were stationed along these canals, operated by the highly intelligent Martians (see Lowell's "Mars as the Abode of Life").

Mr. Gottfried's explanation of the scanty atmosphere of Mars is not necessary. Mars being of smaller mass than the earth naturally lost most of her atmosphere sooner.

According to Lowell and many other authorities on the planet Mars, no mountains exist there. See page 62 of Lowell's "Mars and its Canals." "The evidence is conclusive that great irregularities of surface do not exist on Mars." Therefore the support Mr. Gottfried gives to his theory that there are mountains at the poles is ill-founded.

George R. Kirkpatrick,
Piermont, N. Y.

(This discussion on the Martian canals is taking a very intelligent and interesting form. We want to encourage it, and we will not insert our two-penny until our readers wish. Meanwhile it's your argument.—*Editor.*)

Answer to a Militant Anti-Time Traveler

Editor, WONDER STORIES:

In the May issue, I read Mr. Sykora's letter, in which he put forth what he considered conclusive evidence against the possibility of time travel. Now do not mistake me, I do not claim that time travel is possible (I am, as is Mr. Sykora, a "militant anti-time-travelist"); but I do claim that his argument is open to a great deal of criticism.

Mr. Sykora claims that to travel in time, one must remove a certain quantity of mass and energy from the universe, and he states that this is impossible because of the laws of the conservation of mass and energy; furthermore, he makes the statement that Einstein and Eddington "uphold this principle." Now I do not call him for his statement of the laws of the conservation of mass and energy, but I do call him for the other two.

In his "Nature of the Physical World," Eddington, in discussing time, brings up the question of time travel. He says that the "flow of time" seems to be indifferent as to direction, and that the possibility of traveling back in time seems to be an open question except for the "random element," entropy, which gives a definite direction to "time's arrow," and makes traveling backward highly improbable.

Regarding the nature of time, he brings out nicely his belief that time is the fourth dimension. And that belief is enough to show that he can't be used to back the statement that time travel is impossible because a portion of matter and energy would be removed from the universe.

Perhaps I'd better explain. Let me quote from Mr. Sykora's letter: "Suppose now that a time-traveler begins then to travel in time by changing his time velocity with respect to the universe. He will then cease to exist at that time of our reference point and thus no longer exist at the same time in the universe. He will, therefore, have removed some mass and energy from the universe.

But this is directly opposed to the law of the conservation of energy and mass which states that the sum total of mass and energy in the closed system of the universe is a constant." I fail to understand why he makes the above statements and then calls upon Einstein and Eddington to substantiate him. It is known that they claim time is the fourth dimension. Now, if time *is* the fourth dimension, then yesterday, today and tomorrow are all included in the closed system of the universe (it is immaterial which dimension we use as our basic axis, since each of the others will fall in its respective place).

If time is the fourth dimension, then it *is possible* to travel in time (I mean backward in time, since we are already "traveling" forward). But (according to Eddington in his "Nature of the Physical World") to travel backward in time is highly improbable because of the "random element."

By now, Mr. Sykora is probably wondering how I can tear up his argument and still claim to be, with him, a "militant anti-time-travelist." That he may cease to wonder, I feel urged to state my conviction on the subject. It follows.

I am convinced that time travel is impossible because I believe that time is not a dimension. (If it is not a dimension, it is naturally impossible to travel in it.) Do I hear Mr. Sykora ask, "Then what is it?" My reply, "I'm not *sure* what it is, but I *am* convinced that it is not a dimension." As to what I think it is: I have good reason to believe that it is merely a grand illusion—that it *doesn't exist*. Good reasons? Yes, but may I be excused from airing them at this time. At this "time"! Oh, well; how else can I express it?

Bob Feeney, Jr.,
Kansas City, Mo.

(Time does not exist! This is a new one. Perhaps it is true. Perhaps time is but a figment of our imaginations. Who knows? Mr. Sykora certainly should have an answer to this startling assumption. Let us have it.—*Editor.*)

Projecting the Future

Editor, WONDER STORIES

I was pleased with your answer to my letter in the May number. I believe your policy of allowing your writers to develop their ideas in their own ways is a good one. It will tend to take us into new fields, and it is very clear that science fiction must avoid becoming routine. Its originality and its newness are the two qualities that make me read it.

My inference that you were slipping, which was as I said not a definite conclusion since I had then not read any recent Wonder Stories except here and there, can now be modified almost completely. I have now read all the monthlies up to and including June, 1932, and I have classified all the stories on my scale of 1 to 10, according to ideas, plot and style, etc. An interesting comparison is that of your magazine with your leading rival:

	Your average	Rival	Wonder's Lead in %
1928	4.701		
1929	4.986	3.30	33.8%
1930	4.303	3.505	18.5
1931	4.397	3.00	34.9
1932	4.03	3.176	21.2

Very little recent slipping is shown therefore—and most of my impression was due to the last change in binding and paper, I suppose. Over a period of years both are improving—no doubt because of the spread of ideas, widening of the field, new authors, etc. May I tabulate your leading authors, according to my tables? (including only those with three stories, not counting the Quarterlies, and counting each number of a serial as one story):

1.	Taine	4.04	1.00
2.	MacClure	4.04	1.00
3.	Sharp	3.04	1.33
4.	Bertin	3.04	1.33
5.	Maxwell	3.04	1.33
6.	Edwards	3.07	1.40
7.	England	4.04	1.50
8.	Schachner Zagat	7.14	2.00
9.	Miller	4.09	2.25
10.	Williamson	6.13	2.50
11.	Starr	5.13	2.60
12.	Smith	6.16	2.67
13.	Kirkham	3.08	2.67
14.	Pratt	3.08	2.67
15.	Keller	14.38	2.71

Following closely are Stone, Chappelow, Starzl, Hamilton and Merk. Of those with two stories, Brewer and Von Hanstein lead. My idea of the best stories up to June, 1932 (print only as much of the list as you have room for), from the beginning, is as follows:

1. The Time Stream, Taine ..... Dec. 31

THE READER SPEAKS

2. The Ark of the Covenant, MacClure ...July 29
3. The Eternal Man, Sharp .....Aug 29
4. Brood of Helios, Bertin .....May 33
5. Exiles of the Moon, Schachner-Zagat .....Sept. 31
6. A Mutiny in Space, Edwards .....Sept. 31
7. The Time Ray of Jandra, Palmer ... June 30
8. Tetrahedra of Space, Miller .....Nov. 31
9. City of the Living Dead, Manning-Pratt .....May 30
10. The Rescue From Jupiter, Edwards .. Feb. 30
11. The Fitzgerald Contraction, Brewer .. Jan. 30
12. The Outpost on the Moon, Maxwell .. Dec. 30
13. The Human Termites, Keller .....Sept. 29
14. The Satellite of Doom, Sharp .....Jan. 31
15. The Return From Jupiter, Edwards..March 31
16. The Alien Intelligence, Williamson....July 29
17. Utopia Island, Von Haastein .....May 31
18. The Conquerors, Keller .....Dec. 29
19. The Moon Era, Williamson .....Feb. 32
20. The Struggle for Venus, Arnold .....Dec. 30
21. The Infinite Brain, Campbell ..... May 30
22. The Venus Adventure, Harris ..... May 32
23. The Duel on the Asteroid, McDermott Miller .....Jan. 32
24. The World Without, Herbert .....Feb. 31
25. The Flight of the Mercury, Tanner ...July 30

I believe that the two most significant and important functions of science fiction, being also the reason why I read it, aside from entertainment, are (1) the prediction of the future as it is likely to be, based on a projection of present-day causes and activities, and (2) education, or a sort of broadening influence, and its use to attempt to prevent certain of the evils of the impending future as variously predicted. *S. P.* is a time machine itself which predicts and then seeks to change the future—like the "time Projector."

Most of the stories of course are for entertainment, being adventure and melodrama. Some of these contain stimulating ideas. Almost all of the others are food for thought along various lines. But comparatively few carry out the full purpose as expressed above in a completely developed manner. Some of those which do not would do so if they were better written, paid more attention to literary values, and did not neglect realism. All of the really great science fiction is real. There are many of your writers who probably never will really learn to write, in an artistic style, or realistically. But there are others who would be able to if they realized the necessity.

I believe that science fiction is still an infant. Speaking generally, science fiction and literature are still two distinct things. Our authors have not attained the one; the able creators of literature have not been successful in the other. But there are encouraging signs on both sides. More and more of our writers are attaining some degree of literary skill, and more are trying, and more and more of the recognized writers of the world are experimenting in our field. They are as unskillful in our field so far as we are in theirs. Just as literary critics belittle science fiction, and rightly for the most part, so do we condemn the efforts of the recognized writers of the world in our field. But they are coming closer to us, and we are approaching them. And, undoubtedly, a new form of literature will grow and be recognized in the future. Some of the straws in the wind are: Huxley's "Brave New World," Buchan's "Gap in the Curtain," Kreiser's "Boy From Japan," and very new—Michael Arlen's "Man's Mortality."

In these times of rapidly shifting institutions, doctrines, theories and events, I would like to see more use made of the present-day scene in stories devoted to economic and social fields. They are sciences. I would like to see more forecasting of the rather *immediate* future, based on the interesting events of today. If everything I am thinking about is not written about before I have time to develop it, I'm going to write such a story myself. How do the readers feel about stories of such timely interest?

John A. Leiter,
Attorney-at-Law,
Portland, Ore.

(Continued on page 190)

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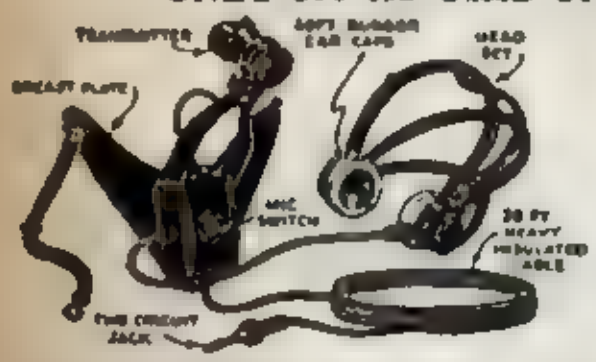

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THE READER SPEAKS

(Continued from Page 189)

(It is not for the editors to intrude into the discussion that this letter will probably open. We can only say that it is the editor's belief that science fiction should be concerned among other things with "forecasting the rather immediate future" as Mr. Schachner tried to do in his series on "The Revolt of the Scientists."

We do see a tendency of men who have previously scorned science fiction to engage in writings that attempt in some form to project the future. The world today is confused and not certain where it is going. It needs, therefore, all of the intelligence of its people to try to peer into the future and see which of the possible roads that humanity might take will lead to peace and plenty, and which will lead to death and destruction. Science fiction, today, has therefore, a vital mission to perform.—*Editor.)*

Flowers to You, Too!

Editor, WONDER STORIES:

"To the ladies" and "An orchid to you" make two appropriate central themes around which to write this letter.

For the ladies, there is great praise to be given Leslie F. Stone with her mannish mode of writing. "Gulliver, 3000 A. D." seems like an actual account of some very astonishing other-planet adventures.

For the same, May, issue, there is a big—oh, a very big, like they probably had in the world's early days when flowers were blooming on a large scale—orchid to Edmond Hamilton for his unusually unique "Island of Unreason." That's a *real* science fiction story; one of the best I've read in your pages; and it's certainly going to get my month's vote in the Jules Verne Prize Association.

Whereas Clark Ashton Smith grows monotonous with fantastic shadows, Edmond Hamilton's every word is truly interesting. Lately, Smith's tales have become to me no more than a mass of words from a weird tales dictionary. The fundamental idea in "Visitors from Mlok" is rather new and thought-provoking, but only the last page of the story carries it out in a worthwhile fashion.

Too much cannot be said of Edmond Hamilton's new story, but in due fairness to the other stories, *they are good.* The new complete-serial idea is slick; slick! Liked "The Man who Awoke" exceptionally well, and, as most other readers, I suppose, am very happy to find "sequels" to it so soon. Once before Laurence Manning, with Fletcher Pratt, wrote a "Living Dead" story, but the theme is good and the new story so handled as to be almost entirely different—and it is *most* absorbing. "The Forgotten Man of Space" is another fine tale like Miss Stone's. Occasional realistic space stories are OK, though in general the unusual-plot story caps everything.

A special word about "The Revolt of the Scientists"; *another* splendid set-up. Congratulations, author Schachner! Like the President of the Future, Jud Hammond, who in the unusual book and picture "Gabriel over the White House" sets conditions right as we would like to have it done, your fine group of scientists on the loose make great and amazing triumphs in a manner that pleases.

June starts your fifth successful year. An orchid to you!

Forrest J. Ackerman,
San Francisco, Calif.

(Flowers to you, too, Mr. Ackerman, for this brief, pointed and interesting letter. Such letters help to set the editorial mind straight on what our readers like and dislike, and give us courage to go on through these dark, dark days. —*Editor.)*

Precipitating Scientific Propensities

Editor, WONDER STORIES:

Time travel stories have always shocked what ever common sense I have, but then, too, I found it hard to believe that a one-pound weight dropped as fast as a ten-pound weight. I wish you would explain the latter question in your "Questions and Answers" column. While I never particularly favored this type story, for the sake of argument, I would like to answer Mr. Sykora's letter of the May issue. Before I start I want to emphatically state that I by no means approve of the methods of time travel employed by most authors. I wish merely to show that such a process might be possible.

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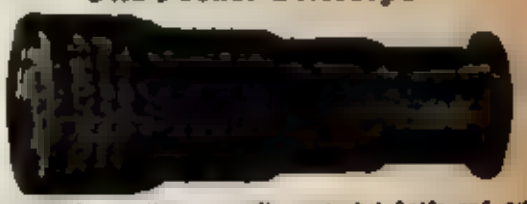

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THE READER SPEAKS

First, we must become relativists and discard the Newtonian space of "points." From the viewpoint of science fiction this casting out of the three-dimensional space continuum certainly can not be condemned. As a matter of fact, this seems the logical process to the majority of contemporary physicists. The four dimensional space-time continuum consists of "events"—an event, here being a point in space at an instant of time.

The Newtonian world is one with objects in motion in it—time, here being a necessity to this motion. The Relativist's world, the ether of "events," is a four-dimensional space-time continuum with world lines or geodesics embedded as intrinsic parts in it. These world lines are not in motion, for motion is a concept which belongs to the now defunct three-dimensional space continuum of classical physics. The four-dimensional world is a "static" world with all events past, future, and present—specifically located in it.

Now then, starting with this fundamental concept of space the dreams of an aspiring time traveler may become ideomotor. Tom Time Traveler resents his fixation in this topsy-turvy universe of world lines and so by releasing atomic energy he has the power necessary to create about himself and his machine a spatial strain which will place him in another time. He would have to be a pretty clever boy to construct control gadgets, etc., but that is irrelevant. To the universal observer there would be no loss of mass or energy, for Tom is still located in that huge, static, four-dimensional space-time continuum. Catch on?

If the editor will permit I would like to add a few words of general comment, since this is my first letter to him during the six years of my science fiction interests. I want to thank Mr. Gernsback for precipitating my scientific propensities, for six years ago I was at that very plastic age of twelve and his magazine directly influenced my choice of science as a self-ideal.

The new WONDER STORIES is a good magazine, but with Mr. Schaller I would like more science in the stories. Most of the stories are good but John Campbell deserves the greater percentage of bouquets. Dr. Keller is also one of your top-notchers.

I believe that the time traveling I described takes care of both impenetrability and merging of identity. I do think however, that our time-traveler could only become an observer of other than present events and would not be able to participate in them, since he would be projected into an artificial space.

I agree with Mr. Sykora that a time traveling plot is a poor vehicle for a story. Other methods are much more sensible and attractive. Anyhow, Mr. Sykora, play your trump card. I may have an extra ace up my sleeve. Cyril Endfield,

Scranton, Pa.

(The discussion on time traveling is getting into deep water; or maybe the other way around, into the higher realm of space-time mathematics. We have no doubt that a scientist who wished to construct a time traveling vessel would have to be a mathematician of a high order, possibly even an Einstein. And then a slip of his slide rule when figuring out the problem might land the unhappy gentlemen outside of space-time, or in the misty realm of "nowhere." Some day we hope to see a story of some one projected out of space-time.—*Editor.*)

In the Name of Reason, Stop!

Editor, WONDER STORIES:

The editor's frankly honest reply to Mr. Leiter's letter in the May WONDER STORIES starts afresh the wheels of hope to turning in this troubled head. It uncovers, though faintly, possibilities of something to be done for science fiction making it a thing alive and vibrant.

So I take my pen in hand and not writing "in kind" but differently, earnestly, offering some suggestions for the enlivenment, notice I do not say, reenlivenment for I believe science fiction never did have the right spirit behind it, of science fiction.

I write because I have gradually come to realize that the motif, or rather lack of motif in 90% of science stories is what science fiction has to overcome before it makes for itself an important name in the magazine world. I believe, if my suggestions are realized in actuality, your circulation will not only increase considerably but will take on a newer and desirable class of readers.

To prevent any misunderstandings that may creep into the head of the editor blinding him to all that is reason and all that is right, may I say that I am neither Communist, Socialist, or meaningless agitator and hope my helpful gestures are not prejudiced against because of any such misconceptions. I write in all sincerity, having grown up with (and grown out of, to my grief) science fiction *as is.* Yet loyal to a long cherished friend, one that brought me many hours of interest I have continued to purchase all the science fiction mags as they came out each month and purchased also when I had the spare cash extra copies for friends unfamiliar with this kind of reading hoping to start them on the road to regular readers.

I have lately started a campaign for S.F. fans to send half-year subscriptions of WONDER STORIES or the other S.F. mags to friends not acquainted with science fiction. The cost is little to the donor and will not only mean a very nice present but will also help the mag to which the subscription is sent. If the person can afford it then a year's subscription is still better.

There are four conclusions that may be drawn for the future. That is, for man, and not for any future evolution of man that may give him a different shape or perhaps no physical shape at all but only the thought remaining. With such things I confess I cannot cope. But I can predict the future for man as he is.

1. That man will be destroyed with the earth in some interstellar cataclysm.

2. That man will destroy himself in war, and certainly this can happen even today.

3. That the masses of the people will if conditions continue allowing one man or a group of men through corporations and trusts to gather an ominous, threatening power be degenerated into a class of leaners subject to a continuous lessening of intelligence until they will be no better than animals for laboring or extinction as is seen fitting by the ones in power.

4. That man will banish money, business for profit, etc., either by any of the possible present ways out or by something unforeseen at present and emerge finally into a Utopian state of human happiness.

Why, I could write better, more intelligent stories than the authors you class as "freak and original minds." If you would change the whole mag radically as you say you would "to keep from slipping" to the mag I visualize then you would have a periodical that will be important, thought provoking, interesting, and dealing with questions that should be dealt with, questions that will be the graph line of the future of mankind. Why just think for a moment . . . stop reading this letter . . . think a moment of the churning elements about us. Russia and its struggle for a Utopian society, Race hatred, Ignorance, Money and power, Socialism and Communism, Mind and intention . . . they constitute what is today and what will be tomorrow and yet you in your stories ignore them. You insist upon living in a fairy land . . . the fairy land of those who gorge themselves with Love Stories, Western Stories, The Shadow . . . I BEG OF YOU IN THE NAME OF REASON, STOP IT!

Give us the future as it will be!

Arthur Berkowitz,
New York City.

(Mr. Berkowitz in an eloquent plea, urges us to enter the field of sociology and economics as part of science fiction. Other readers urge us just as eloquently to stay away from political and economic questions. Between these shoals the editors steer their dangerous course.

We certainly will not be frightened by any individuals and groups to desist from printing good material even though it includes discussion of social and economic topics. Note the series on "The Revolt of the Scientists." On the other hand the fields of sociology and economics are the least predictable of all the fields of science. We know what an aggregation of matter will do under given circumstances, but we have little idea of what an aggregation of men will do.

We do not expect or hope to please all of our readers. Our policy will anger many and they may stop reading WONDER STORIES. But we will go on just the same. We do not want to print what is cheap or meaningless. We want to print stories that in our old age we can look back on with pride.—*Editor.*

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LIST OF PLATES

Plate I. Nude Adult Female
" II. Nude Adult Male
" III. Nervous System of Female
" IV. Skeletal System
" V. Muscular System (Posterior)
" VI. Muscular System (Anterior)
" VII. Vascular System
" VIII Respiratory System
" IX. Digestive System
" X. Male Genital Organs in Detail
" XI. Female Genital Organs in Detail
" XII. Cross-Section of Pregnant Female Body with Child.

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BOOK REVIEWS

BURN, WITCH, BURN by A. Merritt, 300 pages, stiff cloth covers. Size 5½x8. Published by Liveright, Inc. Price $2.00.

This book is admittedly a shocker, a change from the dramatic yet scientifically founded novels that have delighted so many lovers of science fiction. The witch's brew that Merritt stirs in this case is compounded of a brain specialist, an underworld king, a young medical assistant and a woman who owns a doll shop. Ancient rites and modern psychoanalysis, hypnotism and black magic are some of the hair-raising devices that mystify and thoroughly absorb the reader. This is a mystery story, par excellence, and those who can stomach the brew of superstition and science, and forget for the time being strict scientific standards, will be well rewarded with thrills and chills.

SCIENCE QUESTIONS AND ANSWERS

(Continued from Page 186)

9	Fluorine	Active gas
10	Neon	Inert gas
11	Sodium	Solid metal
12	Magnesium	Solid metal
13	Aluminum	Solid metal
14	Silicon	Solid semi-metallic
15	Phosphorus	Solid non-metal
16	Sulphur	Solid non-metal
17	Chlorine	Active gas
18	Argon	Inert gas
19	Potassium	Solid metal
20	Calcium	Solid metal
21	Scandium	Solid metal
22	Titanium	Solid metal
23	Vanadium	Solid metal
24	Chromium	Solid metal
25	Manganese	Solid metal
26	Iron	Solid metal
27	Cobalt	Solid metal
28	Nickel	Solid metal
29	Copper	Solid metal
30	Zinc	Solid metal
31	Gallium	Solid metal
32	Germanium	Solid Metal
33	Arsenic	Solid semi-metallic
34	Selenium	Solid semi-metallic
35	Bromine	Liquid
36	Krypton	Inert gas
37	Rubidium	Solid metal
38	Strontium	Solid metal
39	Yttrium	Solid metal
40	Zirconium	Solid metal
41	Niobium	Solid metal
42	Molybdenum	Solid metal
43	Masurium	Solid metal
44	Ruthenium	Solid metal
45	Rhodium	Solid metal
46	Palladium	Solid metal
47	Silver	Solid metal
48	Cadmium	Solid metal
49	Indium	Solid metal
50	Tin	Solid metal
51	Antimony	Solid metal
52	Tellurium	Solid
53	Iodine	Solid
54	Xenon	Inert gas
55	Caesium	Solid metal
56	Barium	Solid metal
57	Lanthanum	Solid metal
58	Cerium	Solid rare earth metal
59	Praseodymium	Solid rare earth metal
60	Neodymium	Solid rare earth metal
61	Illinium	Solid rare earth metal
62	Samarium	Solid rare earth metal
63	Europium	Solid rare earth metal
64	Gadolinium	Solid rare earth metal
65	Terbium	Solid rare earth metal
66	Dysprosium	Solid rare earth metal
67	Holmium	Solid rare earth metal
68	Erbium	Solid rare earth metal
69	Thulium	Solid rare earth metal
70	Ytterbium	Solid rare earth metal
71	Lutecium	Solid rare earth metal
72	Hafnium	Solid metal (?)
73	Tantalum	Solid metal
74	Tungsten	Solid metal
75	Rhenium	Solid metal
76	Osmium	Solid metal
77	Iridium	Solid metal
78	Platinum	Solid metal
79	Gold	Solid metal
80	Mercury	Metal (liquid)
81	Thallium	Solid metal
82	Lead	Solid metal
83	Bismuth	Solid metal
84	Polonium	Solid metal
85	Alabamine	Solid ? (rare)
86	Niton	Inert gas
87	Virginium	Solid ? (rare)
88	Radium	Solid metal
89	Actinium	?
90	Thorium	Rare earth metal
91	Uranium X1	Metal
92	Uranium	Metal

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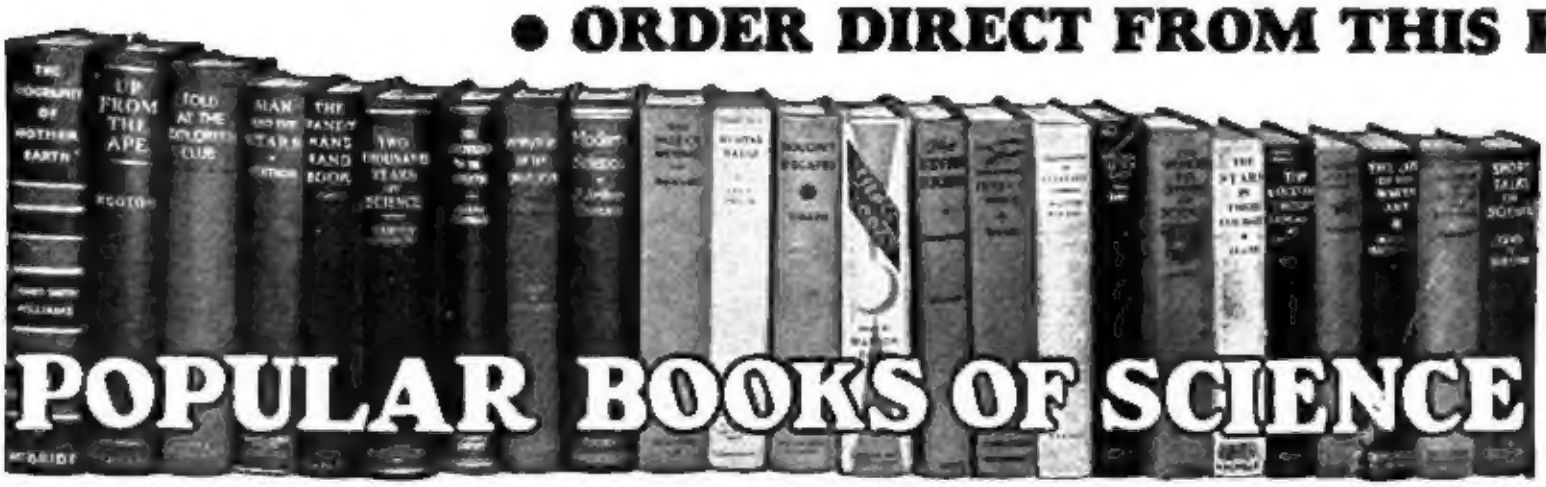

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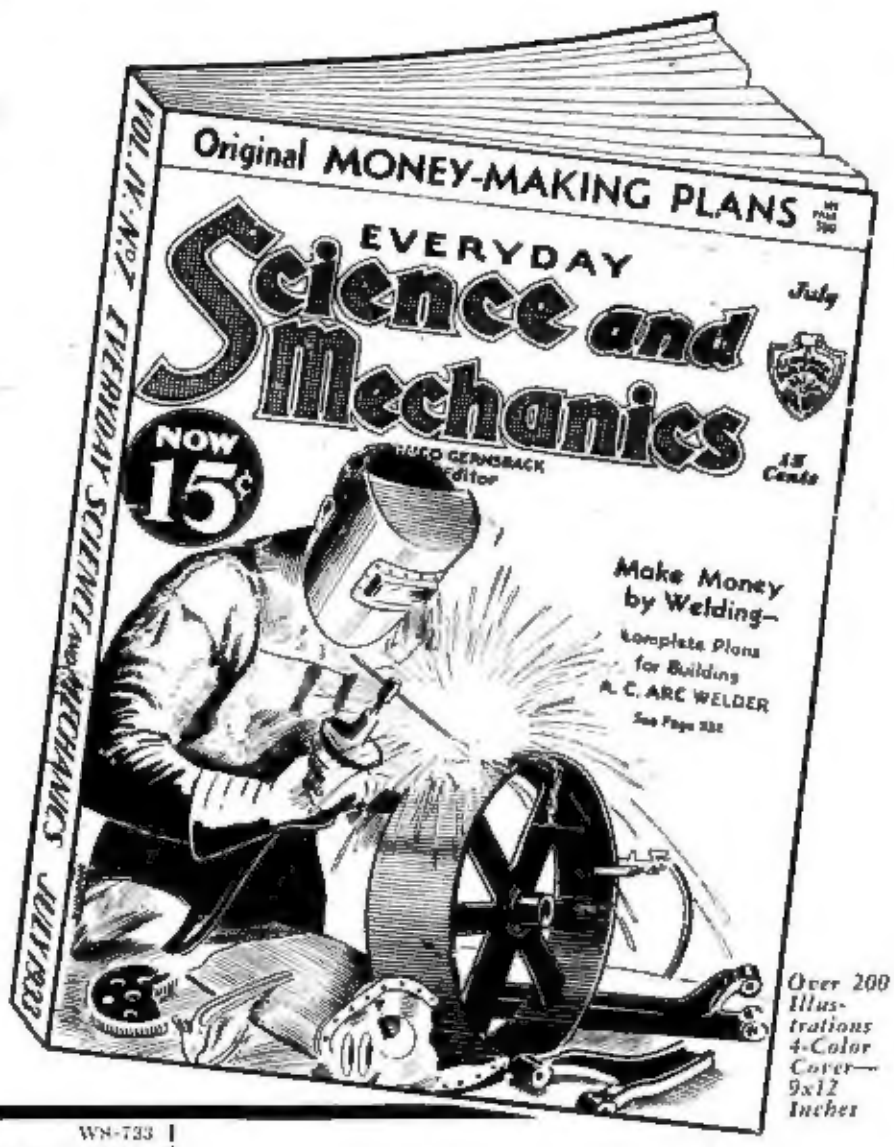

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